4 OTHER REQUIRED ANALYSES

4.1 CUMULATIVE IMPACTS

4.1.1 REGULATORY FRAMEWORK

Cumulative environmental impacts must be addressed in EISs and EIRs under both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). NEPA defines cumulative impacts as those impacts that result from the "incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency...or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." The definition of cumulative impacts under CEQA is similar: "Cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." By requiring an evaluation of cumulative impacts, CEQA attempts to minimize the possibility that an EIR will overlook large-scale environmental impacts by only focusing on the effects of a single project.

Further, the CEQA Guidelines state "[l]lead agencies should define the geographic scope of the area affected by the cumulative effect and provide a reasonable explanation for the geographic limitation used" [Section 15130(b)(1)(B)(3)]. The cumulative impacts analysis "shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects" [Section 15130(b)(3)]. With some projects, "the only feasible mitigation for cumulative impacts may involve the adoption of ordinances or regulations rather than the imposition of conditions on a project-by-project basis" [Section 15130(c)].

Section 15130(a)(3) also states that an EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable, and thus not significant, if a project is required to implement or fund its fair share of mitigation measure(s) designed to alleviate the cumulative impact.

CEQA requires that one of two methods of establishing a future baseline for the evaluation of cumulative impacts be used:

- A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or
- A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the

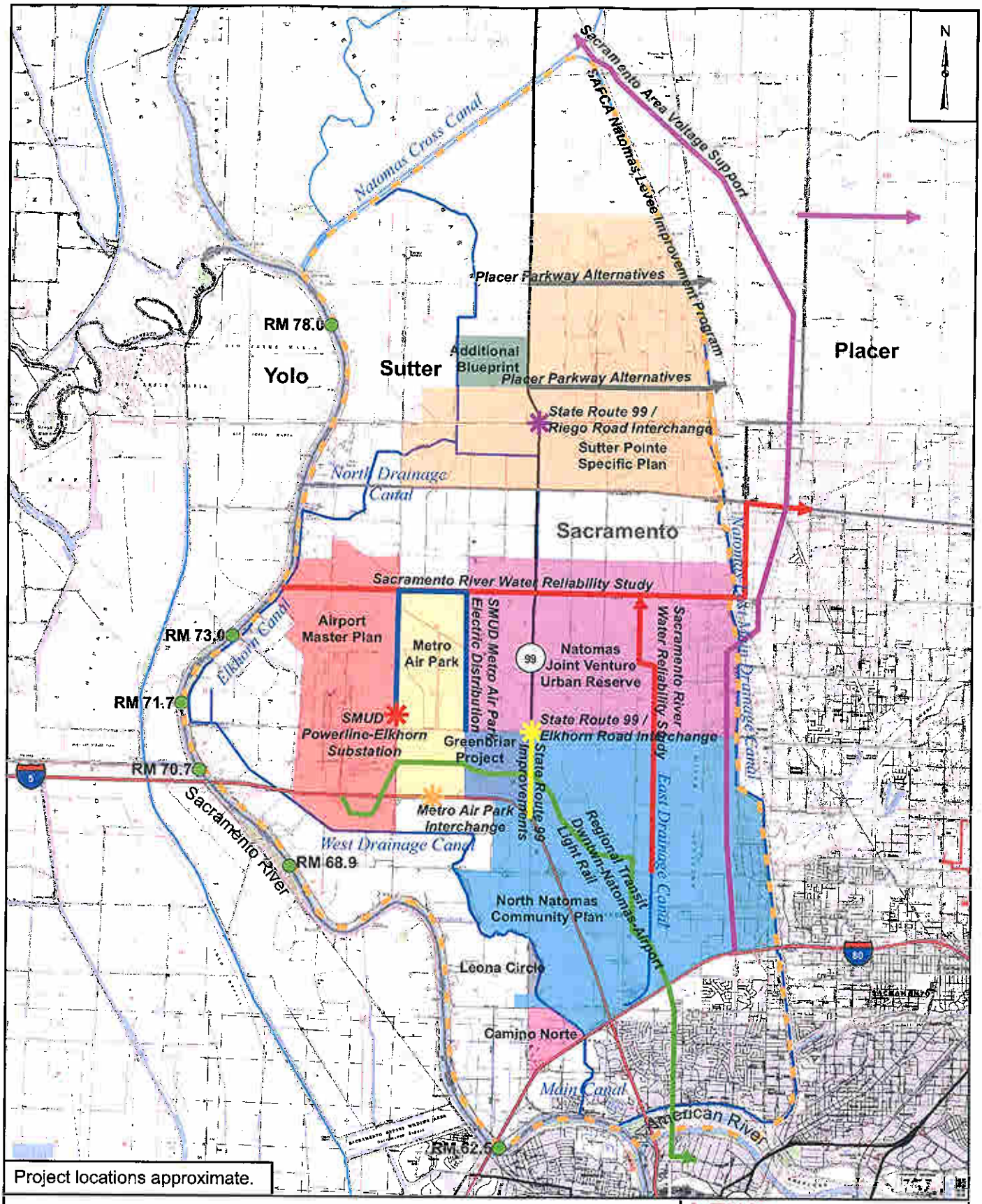
> cumulative impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency (CEQA Guidelines, §15130 (b)).

For the cumulative analysis to be used for the *ABFS Proposed Action*, the list method was used. A list of reasonably foreseeable projects was developed, using knowledge of the study area, information from other environmental documents (EDAW AECOM 2006a), and recommendations from participating agencies. This was combined with an understanding of projected future growth in the ABFS study area provided by existing city and county plans. The cumulative effects analysis contained in this chapter assumes that all phases of the ABFS Proposed Action will be implemented.

For ease of understanding, the cumulative projects have been organized by type of project. Development projects are listed first, followed by projects involving changes to infrastructure (water supply, wastewater, flood management, transportation, and electrical). Finally, projects that don't fit within the prior two categories are listed. **Figure 4-1** shows the location of each of the projects described in this chapter that has a mapable footprint.

4.1.2 DEFINITION OF GEOGRAPHIC SCOPE OF CUMULATIVE IMPACTS ANALYSIS

The geographic scope for the identification of cumulative projects is the Natomas Basin, which is also the ABFS Study Area (**Figure 2-1**). The boundaries of the Natomas Basin are the Sacramento River on the west, the Natomas Cross Canal (NCC) on the north, the Natomas East Main Drainage Canal (NEMDC) on the east, and the American River on the south. The ABFS Study Area was chosen for the cumulative impacts analysis area because the direct effects of the ABFS Proposed Action would occur within the Study Area and because development plans in that portion of the region by both the City and County of Sacramento and by Sutter County are concentrated in the Natomas Basin. The impact analysis in Section 4.2.2: *Analysis of Cumulative Impacts* defines a separate geographic scope for each issue area, focusing on the geographic scope of the identified impacts of the ABFS Proposed Action for issues included in the analysis.



Natomas Central Mutual Water Company

American Basin Fish Screen and Habitat Improvement Project
Cumulative Effects Projects

September 2007

MEAD & HUNT

FIGURE 4-1

1 0.5 0 1 2 Miles

X:\14154\03001\tech\GIS\cumulative impacts 091807.mxd

4.1.3 DESCRIPTIONS OF CUMULATIVE PROJECTS

LAND DEVELOPMENT PROJECTS

Most of the undeveloped lands in the ABFS Proposed Action Area where future development would occur have been identified in the City and County of Sacramento and Sutter County general plans and additional planning policy documents described below as the areas most suitable for urban growth. Because there is overlap among many of these projects, **Table 4-1** summarizes the amount of development currently proposed for the Natomas Basin. These are subject to change as individual projects move forward through the planning process.

Table 4-1 Summary of Cumulative Development in the Natomas Basin

Jurisdiction	Acres of New Development	New Residential Units	New Population
City of Sacramento	3,660	16,600	42,100
County of Sacramento	3,100	0	0
County of Sutter[1]	7,500	17,500	39,000
Total	14,260	34,100	81,100

Notes: Acreage totals include infrastructure within areas to be developed. Infrastructure projects outside the development footprint like most of the Natomas Levee Improvement Program (NLIP) are not included in these totals. The NLIP impact area has not yet been estimated but would probably be an additional several hundred acres, depending on the combination of levee improvements ultimately constructed. Some infrastructure construction would result in temporary construction impacts that would be restored in the long term, returning to grasslands and other usable habitats.

North Natomas Community Plan

The approximately 9,038-acre North Natomas Community Plan (NNCP) area is designated in the City of Sacramento's General Plan as the city's major growth area for new housing and employment opportunities. The NNCP area is bounded by Elkhorn Boulevard to the north, Interstate 80 to the south, the NEMDC to the east, and the West Drainage Canal and State Route (SR) 99 to the west. Within this area, the City of Sacramento envisions the development of urban land uses consisting of residential, employment, commercial, and civic land uses that would be interdependent on local transit service and transit routes, including light rail (EDAW AECOM 2006a).

In 2000, the estimated population of the North Natomas area of Sacramento County was 1,082 people occupying 416 housing units (Sacramento Area Council of Governments [SACOG] 2002). As of September 14, 2005, the City of Sacramento had approved 12,162 lots for development of residential, commercial, and industrial land uses; 10,801 building permits;

[1] Based on Measure M limitations.

11,599 single-family residential special permits; and 6,003 multifamily residential special permits for this area (City of Sacramento 2005). SACOG estimates there were 14,865 persons living in the NNCP area and 5,368 housing units in the area in 2005, and projects that 45,040 persons will occupy 17,230 housing units in the NCCP area in 2025 (SACOG 2005). At buildout (year 2016), the NNCP estimates a population of 66,495 in the NNCP area occupying approximately 9,038 acres (City of Sacramento 1996) (EDAW AECOM 2006a).

The environmental consequences of buildout of the NNCP were addressed in the 1986 NNCP EIR (certified by the Sacramento City Council in May 1986) as well as the 1993 supplement to the 1986 NNCP EIR) (City of Sacramento 1994). Development within the NNCP started in 1999 and several development projects have already been approved in the North Natomas community. Some of these projects are fully built out and occupied, while others are still in the development phases. These projects include Westborough, Cambay West, Natomas Crossing, Natomas Town Center, Panhandle, and Natomas Creek. The development projects in the North Natomas community that have been approved but are yet to be fully built out have been identified and anticipated by the NNCP and the associated environmental review documents (EDAW AECOM 2006a),

Natomas Joint Vision Plan

The City/County North Natomas Joint Vision Plan (Joint Vision) is a long-term agreement between the City and County of Sacramento to collaboratively manage growth and preserve open space and habitat in the 10,000-acre portion of unincorporated Natomas in Sacramento County. The area is north of the City of Sacramento and generally bounded by Sutter County on the north, the Sacramento River on the west, and the NEMDC on the east. Approximately 28 percent of this area is developed, with Sacramento County designating most of the remaining area as agricultural cropland (City of Sacramento 2005).

The Joint Vision anticipates that there will be substantial pressure to urbanize portions of the Natomas area now designated for agricultural use. Both jurisdictions determined that it would be mutually beneficial to cooperatively plan for the urbanization of the area in accordance with the SACOG Blueprint Smart Growth principles (discussed below), and agreed to work to protect the Sacramento International Airport (City of Sacramento 2006). The land use plan has not been developed, but general concepts have been considered. In general, the preferred land use scenario for the Joint Vision area consists of a mixture of residential densities, an industrial park adjacent to the eastern edge of the Sacramento International Airport, and open spaces in the northern extent separating development from the Sutter County boundary. The 577-acre Greenbriar Project (discussed below) is within the Joint Vision area. This project, currently under environmental review by the City of Sacramento, would include the development of

approximately 3,500 residential units and more than 27 acres of commercial land uses on currently undeveloped, agricultural land that has been historically rotated between rice, alfalfa, wheat, and row crops.

Greenbriar

The Greenbriar Project is addressed in the Natomas Joint Vision Plan, described above. It consists of development of a 577-acre site at the northwest corner of the Interstate 5/SR 99 Interchange, between Metro Air Park on the west and the current limits of North Natomas on the east. The site was historically used for agriculture, primarily for rice production, and includes the site of a former racehorse training facility, including a dirt track (EDAW AECOM 2006b). The Greenbriar Project would develop land outside of the area designated for urbanization in the NBHCP.

As reported by EDAW AECOM (2006b), the project's proposed land uses include:

- 3,473 residential units in densities ranging from 4 to over 30 units per acre
- 27.5 acres of retail and other commercial uses to be developed as follows:
    - 155,000 square feet of big-box retail
    - 67,000 square feet for grocery sales
    - 66,000 square feet of village and community commercial
- a 10-acre school site
- 48.5 acres of neighborhood parks
- a 39-acre lake/detention basin
- a 250-foot linear open space section without trails or recreational facilities on the western edge of the site along Lone Tree Canal for giant garter snake habitat.

The project includes annexation of the site to the City of Sacramento.

Sacramento Area Council of Governments (SACOG) Sacramento Region Blueprint

In December 2004, SACOG, representing the counties of El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba and their 22 constituent cities, adopted the "Preferred Blueprint Scenario" to guide land use and transportation choices over the next 50 years based on the assumption that the region's population will grow from its current population of 2 million to include more than 3.8 million people. The Blueprint Scenario was initiated in 2002 to study future land use patterns and their potential effects on the region's transportation system, air quality, housing, open space, and other resources. Through a series of Blueprint workshops, an alternative to current growth patterns (the base case) was developed that integrates smart growth concepts such as higher-density, mixed-use developments and reinvestment in existing developed areas.

The Preferred Blueprint Scenario assumes certain levels and locations of both "reinvestment" (i.e., additional development on already-built parcels) and greenfield development (i.e., large-scale development on vacant land), including extensive development in the Natomas area. The Preferred Blueprint Scenario will become part of SACOG's long-range transportation plan for the six-county region. It also will serve as a framework to guide local government in growth and transportation planning through 2050 (SACOG and Valley Vision 2005).

The Sacramento Region Blueprint provides detail on future development by subarea (SACOG and Valley Vision 2007). Subareas within the Natomas Basin include the following:

Airport/Airpark

This area is within unincorporated Sacramento County west of the City of Sacramento and the Natomas Vision Area. Under the Blueprint Scenario, it will develop somewhat less than in the Base Case scenario (i.e., with existing general plan buildout). This scenario projects 18,345 new jobs and 14 more housing units by 2050.

North Natomas Vision Area

This area would have higher housing growth and lower jobs growth under the Blueprint Scenario than with the existing general plan. Under this scenario, 41,437 new housing units would be built (rather than 25,858 under the base case) and 8,868 new jobs would be created.

Northern Sacramento

This Blueprint-defined area includes the area within the Natomas Basin south of the Joint Vision area, but it also includes areas east of the NEMDC outside the Basin. The Blueprint Scenario plans for far less job growth in this area (about 92,000 jobs instead of 163,000 under the base case) and far more housing (about 66,000 units instead of 24,000).

South Sutter County

The Blueprint analysis assumes that the portion of Sutter County within the Natomas Basin will develop to provide about 20,200 jobs and 8,560 new housing units.

South Sutter County Specific Plan and Sutter County Measure M

In 1996, the Sutter County Board of Supervisors identified a 10,500-acre South Sutter County Industrial/Commercial Reserve in the Sutter County General Plan. This general plan designation, known as SSCI/C Reserve, is located in south Sutter County, adjacent to the Sacramento County boundary. In 2000, the Sutter County Board of Supervisors further identified, within the SSCI/C Reserve designation, a 3,500-acre area for development of a

specific plan. Because of its proximity to major transportation corridors, metropolitan areas, and the Sacramento International Airport, the Board of Supervisors determined that large-scale industrial and commercial development is appropriate for this area of the county.

Sutter County began development of the 3,500-acre specific plan area in 2004 when Sutter County voters passed Measure M, an advisory measure intended to provide the Sutter County Board of Supervisors with an indication of public sentiment regarding the types and level of development in the 7,521-acre area of the South Sutter County Industrial/ Commercial Reserve in the northern part of Natomas. The southern boundary of the Measure M area forms the Sutter/Sacramento county line. The vote did not approve any specific development proposals, but did provide guidance on how development may be viewed in the future. Measure M parameters for the South Sutter area are:

- at least 3,600 acres for commercial/industrial development;
- at least 1,000 acres for schools, parks, other public uses, and retail; and
- no more than 2,900 acres for residential development, with a population cap of 39,000.

In July 2006, the Sutter Pointe Specific Plan application was submitted for review by Sutter County. The Sutter Pointe project area would consist of 7,500 acres of the 10,500-acre Sutter County SSCI/C as designated in the 1996 General Plan. The specific plan application is under review by Sutter County (Sutter County Planning Services 2006).

According to Sutter County (2007), the specific plan proposes:

- 2,805 acres of residential uses comprising up to 17,500 dwelling units;
- 3,704 acres of employment centers and related facilities; and
- 1,012 acres of community facilities, including 67 acres of neighborhood parks, 169 acres of schools, and 776 acres for other parks and open space.

Environmental analysis of the project has begun, and a final programmatic EIR, along with project-specific analysis of some infrastructure, is expected in early 2008.

Metro Air Park

The Metro Air Park Project involves industrial development on approximately 2,000 acres within the North Natomas Joint Vision area, including 20 million square feet of office, industrial, and commercial space and a golf course. Development of this project began in 2003 (EDAW 2006a). A separate HCP was prepared for this project because it lies outside the Sacramento city limits. Thus, it could not be covered by an incidental take permit issued to the City of

Sacramento. However, the project is described in the NBHCP and would participate in the conservation program described in that plan (Federal Register 2001).

Camino Norte/Leona Circle

The Camino Norte/Leona Circle Project is a 400-acre Sphere of Influence area annexation to the City of Sacramento located generally east of El Centro Road, south of the West Drainage Canal, and north of Interstate 80. The Sacramento Local Agency Formation Commission retained an environmental consultant in February 2007 to prepare CEQA documentation on this annexation. The CEQA document is expected to be an initial study/negative declaration to be released in late 2007. This area includes the Camino Norte project area plus existing large-lot residential areas on Leona Circle and existing commercial uses in the vicinity of West El Camino Avenue.

The City of Sacramento has reviewed a preliminary application for the Camino Norte/Leona Circle project to develop 265 acres of this area into 1,300 residential dwelling units and a 1.6 million-square-foot employment center (Mende pers. comm.).

City of Sacramento General Plan and General Plan Update

Development within the City of Sacramento incorporated area must be consistent with the General Plan. The current General Plan was adopted in 1988 and identifies urban land use designations throughout the City, including most of the land development projects within City Limits described above. Some, such as Camino Norte and Greenbriar projects described above, require annexation and/or general plan amendments.

The City is in the process of updating the General Plan. This process, which will update the General Plan to accommodate growth through the year 2030, was begun with community meetings in early 2005. The schedule calls for adoption of the General Plan by September 2008. Although it would be premature to analyze the General Plan update before an alternative is selected, the preferred alternative shows urbanization in the areas addressed by the 1988 General Plan, with the addition of Camino Norte, Greenbriar, and greater urbanization of the panhandle area at the eastern side of the Natomas Basin and of the employment corridor along Interstate 5. The analysis of listed projects for the ABFS Proposed Action cumulative analysis addresses urbanization of these areas. Even if the general plan update alternative ultimately adopted increases the intensity of development, it would not substantially change the cumulative impact conclusions of this EIS/EIR, which are more sensitive to acres developed than to development intensity.

County of Sacramento General Plan and General Plan Update

The current County of Sacramento General Plan was adopted in 1993 and does not plan for growth in the Natomas Basin not already described for this cumulative analysis. The 1993 General Plan is currently being updated by the County. An EIR is underway which is expected to be complete no sooner than August 2008. Thereafter, workshops will be held before the Policy Planning Commission and Board of Supervisors prior to adoption. The draft updated General Plan does not substantially vary from the existing plan in the Natomas Basin.

INFRASTRUCTURE IMPROVEMENT PROJECTS

Water Forum Agreement

The Water Forum is a diverse group of business and agricultural leaders, citizens groups, environmentalists, water managers, and local governments in Sacramento County. In 1995, Placer and El Dorado counties also joined the water forum. Natomas Mutual is a signatory to the Water Forum Agreement. Participants in the Water Forum are listed in **Table 4-2**.

This group of community leaders and water experts has determined that unless actions were taken, the region would face water shortages, environmental degradation, groundwater contamination, threats to groundwater reliability, and limits to economic prosperity. Thus, the water forum was created to develop a comprehensive package of linked actions that would achieve two coequal objectives:

- Provide a reliable and safe water supply for the region's economic health and planned development to the year 2030.
- Preserve the fishery, wildlife, recreational, and aesthetic values of the lower American River.

The comprehensive Water Forum Agreement allows the region to meet its needs in a balanced way through implementation of seven elements. These elements include detailed understandings among stakeholder organizations on how the region will deal with key issues such as groundwater management, water diversions, dry year water supplies, water conservation, and protection of the lower American River.

Table 4-2 Water Forum Participants	
Water Interests	
Arden-Cordova Water Service	Georgetown Divide Public Utility District
Carmichael Water District	Natomas Mutual Water Company
California-American Water Company	Omochumne-Hartnell Water District
Citrus Heights Water District	Orangevale Water Company
City of Folsom	Placer County Water Agency
City of Roseville	Rancho Murieta Community Services District
Clay Water District	Regional Water Authority
Del Paso Manor Water District	Rio Linda/Elverta Community Water District
El Dorado County Water Agency	Sacramento County Farm Bureau
El Dorado Irrigation District	Sacramento Suburban Water District
Fair Oaks Water District	San Juan Water District
Florin County Water District	Galt Irrigation District
Business Interests	
Associated General Contractors	Sacramento Metro Chamber of Commerce
Building Industry Association	Sacramento-Sierra Building & Construction Trades Council
Sacramento Association of Realtors	
Environmental Interests	
Environmental Council of Sacramento	Save the American River Association, Inc.
Friends of the River	Sierra Club -Mother Lode Chapter
Public Interests	
City of Sacramento	Sacramento County Alliance of Neighborhoods
County of Sacramento	Sacramento County Taxpayers League
League of Women Voters of Sacramento	Sacramento Municipal Utility District

The Water Forum itself does not implement any projects, but supports the projects to be implemented by its member jurisdictions. These include the Sacramento River Water Reliability Study, described below.

Sacramento River Water Reliability Study

Studies for the Sacramento River Water Reliability Study (SRWRS) project are funded jointly by Reclamation and Placer County Water Agency (PCWA) (Reclamation *et al.* 2002).

This project would consist of a new water diversion and pump station on the Sacramento River near the end of Elverta Road north of the Sacramento International Airport. The diversion would have a capacity of 235 million gallons per day (mgd) (about 365 cubic feet per second [cfs]) (Reclamation *et al*. 2005). A water treatment plant would be built on 100 acres along Elverta Road near the diversion, and pipelines would be built connecting the diversion to the treatment plant and the treatment plant to the systems of the SRWRS project partners, the City of Sacramento, the City of Roseville, the Sacramento Suburban Water District (SSWD), and the PCWA.

The objective of the SRWRS is to provide a new diversion on the Sacramento River to provide water to the project partners while preserving the American River consistent with the Water Forum Agreement. Water would be distributed as follows (Reclamation *et al.* 2005):

- PCWA – 35,000 acre-feet per year
- SSWD – 29,000 acre-feet per year
- Roseville – 7,100 acre-feet per year
- Sacramento – additional diversion point for reliability and conjunctive use

Sacramento Valley Integrated Regional Water Management Plan

In 1995, the State Water Resources Control Board (SWRCB) adopted a new water quality plan for the San Francisco Bay/Sacramento-San Joaquin Delta, and began a series of hearings to address the responsibility to meet the water quality plan objectives. Phase 8 of the Bay-Delta Water Rights Hearings would have addressed the responsibilities of the Upstream and Downstream Water Users, Reclamation and the Department for meeting the Bay-Delta flow-related standards. Because it was anticipated that the Phase 8 hearings would be lengthy and adversarial, the parties instead negotiated the development a collaborative program to develop water resources to meet the Bay-Delta water quality standards. The Sacramento Valley Water Management Agreement establishes a process by which the parties are collaborating in the development and implementation of a variety of water management projects that would provide up to 185,000 AF of water from Sacramento Valley water resources. The Short-Term Program would develop and implement projects over the next 10 years to provide water as intended under the Short-Term Settlement Agreement. This water would be made available by conjunctively reducing surface diversions and using groundwater pumping or by re-operation of district or water agency reservoirs. The SWP and CVP would then assume responsibility for meeting the flow-related standards of D-1641 to implement the 1995 Delta WQCP objectives.

The draft Integrated Regional Water Management Plan (IRWMP) was released for a 45-day public review on August 30, 2006. Funding for a portion of the projects included in the IRWMP has been awarded, but not yet received.

Upper Northwest Interceptor

The Upper Northwest Interceptor Project is a multi-phase sewer interceptor project extending from Citrus Heights west along Elkhorn Boulevard to the East Drainage Canal, then south along the canal to a pump station near where San Juan Road crosses the canal (SRCSD 2007). Sections 5 through 8 east of Cherry Lane are complete; Sections 1 through 4, which cross the Natomas Basin, are planned for construction beginning in 2007 and finishing in 2010 (SRCSD

2007). The purpose of this project is to add to the capacity of existing collection systems serving northern Sacramento County and to serve new developments in Citrus Heights, Orangevale, North Highlands, Rio Linda, Antelope, Gibson Ranch, and North Natomas (DERA 2005).

The interceptor pipeline is planned to range from 7 to 12 feet in diameter and to be installed at a depth of from 17 to 47 feet deep measured to the bottom of the pipe (DERA 2005). Along Elkhorn Boulevard, trenching may be a typical construction method except at sensitive crossings like Steelhead Creek, the railroad, and Dry Creek, where the pipeline is planned to be installed via bore and jack or tunneling. Bore and jack and tunneling are expected to be the typical methods along the north-south alignment along the East Drainage Canal. The pipeline alignment follows the east side of the East Drainage Canal from Elkhorn Boulevard to north of North Market Boulevard, then crosses to the west side of the canal.

Sacramento Area Flood Control Agency (SAFCA)/Corps Natomas Levee Improvement Program

In 2007, SAFCA released a Final EIR on its proposed assessment district to fund the local share of flood control improvements in the Sacramento area (EDAW AECOM 2007). Among the projects this district would fund is the Natomas Levee Improvement Program (NLIP). The EIR identified many NLIP features that affect parts of the east levee of the Sacramento River, the south levee of the NCC, and the west levees of the Pleasant Grove Creek Canal (PGCC) and Steelhead Creek (also known as the NEMDC), including (EDAW AECOM 2007):

- Increasing freeboard so the top of the levee height remains three feet above the water elevation of a 200-year flood. This could affect five miles of the north levee of the NCC as well as about 20 miles of the levees referenced above.
- Preventing erosion at areas that could be prone to erosion-induced levee failure (a total of about three miles).
- Remedying subsurface seepage affecting 20-30 miles including sections of the above levees plus the north levee of the American River. This seepage is a hazard where the soils below the levee are permeable, allowing water to seep under the levee during high flows. Such seepage can lead to erosion of the levee foundation and ultimately failure of the levee.

The SAFCA EIR is programmatic in nature and does not address the precise locations and means where these and other fixes would occur, except for the construction of a cutoff wall in the western 12,500 feet of the NCC levee, which was addressed at a project-specific level in Volume II of the EIR. The NCC levee repair is currently underway.

SAFCA has previously studied the construction of a setback levee as a means of avoiding erosion and some seepage problems associated with the Sacramento River east levee downstream of the NCC. This would consist of constructing a new levee section as much as five miles long and up to 1,000 feet on the landside of the existing levee (joining the existing levee at the beginning and end of the new levee). This option is not currently being pursued by SAFCA but could be pursued at some point by another agency (EDAW AECOM 2007). It is not addressed further in this cumulative analysis. Other, lesser setback options are being evaluated by SAFCA but an alignment has not yet been determined and readied for environmental analysis.

Improving levee freeboard would entail hauling and placing select soil and rock to raise the levee. Levees would be widened if necessary to provide the appropriate slopes to accommodate the new height and desired crown width. In areas where additional width is not available, floodwalls (typically concrete) would be constructed on top of the levee.

Erosion protection consists of placement of rock revetment on the waterside of the levee, and in some cases construction of a rock bench at the toe of the levee. These can be constructed around some existing riparian vegetation, and rock benches can provide planting areas for riparian vegetation as well.

Subsurface seepage (also referred to as "underseepage") can be remedied by construction of deep cutoff walls (up to 80 feet deep) through or immediately adjacent to a levee. This entails excavation of soil and mixing it with materials such as cement and bentonite, and replacing it. Other means of controlling subsurface seepage include seepage berms (earth slope extension on the landside of the levee to increase the flow path for water seeping under the levee, reducing the chance of failure) and relief wells, which are engineered to remove seeping water along the landside edge of the levee, precluding erosion and failure.

SAFCA recently certified an EIR that covers 2008 NLIP landside work at a project level, and work in 2009 and 2010 landside work at a program level. The Corps is currently preparing an EIS for the same activities. The EIS is scheduled to be done by May 2008.

DWR/Corps Critical Erosion Site Repairs

DWR and the Corps have undertaken numerous levee repairs to address system deficiencies in the Sacramento River Flood Control System in response to a state of emergency declared by the Governor in early 2006. Twenty-two of the identified sites were repaired by DWR and 11 repaired by the Corps in 2006 (DWR 2006a). Of these, two were along the Sacramento River in the ABFS Action Area, from the American River to the NCC, at Sacramento River Mile (RM) 69.9 and RM 72.2.

The Corps subsequently identified 71 emergency levee repair sites (Corps 2006a), including six in the ABFS Action Area (DWR 2006b). Repairs on three of these were begun in 2006 by DWR. These included RM 70.7, a 640-linear foot (LF) repair; RM 71.7, a 900 LF repair; and RM 73.0, a 500 LF repair (Sandhu pers. comm.). Phase I of the DWR repairs, consisting of structural repairs involving the placement of rock along the waterside of the levee and related repairs, is now complete. Phase II of the project, consisting of soil placement and planting of riparian vegetation, was to be completed in 2007.

The Corps has assumed responsibility for the remaining three levee repair sites in the project reach: RMs 62.5R (255 LF of erosion), 68.9L (786 LF), and 78.0L (1,058 LF) (Corps 2006b). Repair of these sites is planned to be complete by November 2007 (Corps 2007). As with the DWR sites, these repairs consist of placing rock revetment along the levee and levee toe. The median rock diameter specified is eight inches (Corps 2006b). The Corps plans to place sand and silt on the rock to provide a medium for plant growth in riparian benches, and to plant riparian vegetation. Woody material approximately 23-35 feet long and with a crown that is six to eight feet wide is planned to be anchored in place in the repaired areas (Corps 2006b).

DWR is also preparing to conduct detailed assessments of levee conditions throughout the State Plan of Flood Control. This work would include taking core samples along project levees to determine soil composition and evaluate the stability of the levees. This work may lead to the identification of additional sites where future emergency levee repairs may be needed.

Because these projects were completed as responses to an emergency, as declared by the Governor, no environmental documentation was required for these projects, and the environmental effects have not been described.

Sacramento International Airport Expansion

The Sacramento International Airport Master Plan (Parsons Brinckerhoff 2004) envisions many new or expanded features for the airport and its environs, including:

- Adding, extending, or widening runways. This includes extending one runway from 8,600 to 11,000 feet to allow use by larger transcontinental jets, construction of a new 8,600-foot runway, and new taxiways for each existing and planned runway.
- A new, expanded terminal to replace Terminal B, with a new concourse serving 23 gates, and expansion of the concourse for Terminal A.
- Airport access improvements, including coordination with the Regional Transit Downtown-Natomas-Airport project described later in this chapter.
- Expansion of air cargo capacity on land near the east runway.

- A new corporate jet terminal.
- Airport and airline support facilities, including a new fuel farm, a new control tower, and a new aircraft rescue and firefighting station.
- Changing land uses, including about 366 acres of aviation- or non-aviation- related development, 360 acres of commercial development, 114 acres for expansion of ground transportation, 269 acres of land acquisition for the new runway, and 438 acres to prevent encroachment of incompatible uses from the south.
- Drainage improvements to accommodate expansion and increase in impermeable surfaces. Drainage now discharges to the Sacramento River and canals, and new on-site storm water retention is proposed.

As part of the Master Plan, an overview of expected environmental effects was prepared (Parsons Brinkerhoff 2004).

Metro Air Parkway/Interstate 5 Interchange

The County of Sacramento is proposing to construct an interchange at Interstate 5 (I-5) and Metro Air Parkway, on I-5 midway between Power Line Road and Lone Tree Road. The project would occupy approximately 40 acres, including about 30.9 acres of new right-of way (DERA 2006). The interchange would be constructed in two phases, with the first finished in 2008 and the second sometime after 2015. The first phase interchange would include a three-lane overcrossing of I-5, with diagonal on- or off-ramps in the northeast, northwest, southwest, and southeast quadrants (DERA 2006). A loop ramp would serve traffic traveling southbound on Metro Air Parkway to southbound I-5. The ultimate phase is planned to include five lanes over I-5 and an auxiliary lane on southbound I-5 between Airport Boulevard and the project interchange (DERA 2006). It would also include a northbound Metro Air Parkway to northbound I-5 loop onramp. Under this configuration, Metro Air Parkway would connect to Bayou Way, the southbound I-5 frontage road.

Caltrans Interstate-80 Across the Top Bus/Carpool Lanes

According to FHWA and Caltrans (2007), Interstate 80 Across the Top Bus/Carpool Lanes Project consists of three components:

- Construction of bus and carpool lanes (also known as high occupancy vehicle or HOV lanes) in the median of Interstate 80. There would be a lane in each direction, and they are planned to extend from the bridge over the Sacramento River east to nearly Watt Avenue;

- Construction of auxiliary lanes (i.e., lanes on the right-hand side of the freeway that extend between an onramp and the next offramp to facilitate merging) in each direction between West El Camino Avenue and I-5; and
- Construction of auxiliary lanes in each direction between Northgate Boulevard and Norwood Avenue.

Placer Parkway Corridor Preservation

The Placer Parkway Corridor Preservation Project is a project by FHWA, Caltrans, and the South Placer Regional Transportation Authority (SPRTA) to identify and acquire an alignment to connect State Route 65 near Roseville with State Route 99/70 to the west, in the American Basin for the future construction of Placer Parkway. Specifically, the action being considered and evaluated is to select and preserve a 500- to 1,000-foot-wide corridor in the project study area, within which the future four- or six-lane Placer Parkway may be constructed. Placer Parkway is intended to reduce anticipated congestion on both the local and regional transportation system and to advance economic development goals in south Sutter County and southwestern Placer County (PCTPA 2007).

The planning for Placer Parkway involves two phases: (1) the present action, selection of a corridor (titled the Placer Parkway Corridor Preservation Project), and (2) the future selection of a precise alignment within the corridor and a decision whether or not to build the Parkway. If a build alternative is selected and pursued after the second phase, the ultimate Placer Parkway project would be constructed and operated. Five potential corridors have been identified by the PCTPA) for a four-lane expressway or freeway (PCTPA 2007). These would join SR 99/70 at a new interchange in the vicinity of Sankey Road or Riego Road. Construction is not slated to begin until after 2015 (PCTPA 2003).

Improvements to State Route 99 between I-5 and Elverta Road

Sacramento County is taking the lead in planning for improvements to SR 99 between its interchange with I-5 and Elverta Road. A Project Study Report (PSR) was prepared for this project (Dokken Engineering 1999) that described the outlines of the improvements and the need and purpose for these improvements.

According to the PSR, the Need and Purpose of the project is to provide access to SR 99 for the Metropolitan Airport/Vicinity Special Planning Area and to maintain the concept Level of Service of "D" on SR 99 with regional cumulative growth and build-out of the project design year (2020).

Although still in the planning stages, the project tentatively consists of the following elements:

- Improvements to the Elkhorn/SR 99 Interchange;
- Widening of SR 99 to 6 lanes from the I-5/SR 99 Interchange to Elverta Road;
- Addition of auxiliary lanes on SR 99 between the I-5/SR 99 Interchange and Elverta Road;
- Construction of the SR 99/Elverta Road interchange;
- Construction of an overcrossing of SR 99 at the planned Meister Way; and
- Upgrading the southbound SR99 to northbound I-5 connector to two lanes.

An Environmental Reevaluation & Preliminary Environmental Assessment Report (PEAR) was included with the PSR. The PEAR is a reconnaissance-level assessment of the environmental values of the Metro Air Park Planning Area. The PEAR concluded that "the project site is of moderate habitat value and generally suitable habitat for the special-status species listed…". These species include many of the species identified as potentially being affected by the ABFS Proposed Action, including: VELB, Sacramento splittail, western pond turtle, giant garter snake, great blue heron, great egret, white-faced ibis, white-tailed kite, northern harrier, Cooper's hawk, Swainson's hawk, burrowing owl, short-eared owl, and tricolored blackbird.

The County of Sacramento will be starting an environmental review on the project in the near future. This will lead to a Project Report, which will enable them to start final design. Construction planned for July 2009, if funding is received. Funding for this project is anticipated to come from recently passed state bond funds and from locally-generated developer assessments. This project is listed in the Governor's Strategic Growth Plan.

State Route 99/Riego Road Interchange

Sutter County is taking the lead in planning for upgrading the SR 99/Riego Road intersection to an interchange. A Project Study Report (PSR) was prepared for this project on July 12, 1993, and a Draft Project Report in October 2002 (Dokken Engineering 2002). The Draft Project Report described the need and purpose for the improvements and outlines the improvements.

According to the Draft Project Report the purpose of the proposed interchange is to eliminate the at-grade intersection to improve overall safety, and to provide adequate capacity for existing and future traffic demands. Existing traffic on Riego Road is heavy due to the large number of people using it to commute between Roseville and Sacramento. The SR 99/Riego Road intersection is projected to have insufficient capacity to handle forecasted volumes for the year 2015, even if it were widened.

Although still in the planning stages, the project tentatively consists of the following elements, which have been modified somewhat since the publication of the 2002 Project Report:

- Constructing the Riego Road Overcrossing to carry eight lanes, plus a dedicated turn lane to the southbound loop on-ramp on westbound Riego Road;
- Constructing sidewalks on both sides of the overcrossing;
- Constructing a CHP truck inspection station on the south side of the interchange; and
- Constructing HOV bypass lanes and CHP enforcement areas on all on-ramps.

Dokken Engineering is currently updating and revising the Draft Project Report. Following its completion, Caltrans will prepare the Plans, Specifications, and Estimates and the environmental documentation and permitting. Construction is anticipated to start in 2011.

Regional Transit Downtown-Natomas-Airport (DNA) Light Rail

The Sacramento Regional Transit District (RT) is studying the extension of the existing light rail system from downtown Sacramento, beginning at H and 7th Street, through Natomas, to the Sacramento International Airport (RT 2007b). This project would entail 13 miles of track and 14 new stations. The track would generally follow existing streets, including Truxel Road, East Commerce Way, Meister Way, and Elkhorn Boulevard (RT 2007b). It would include stations at: 7th and H Street, Sacramento Valley (at Fifth Street between G and H), Railyards, Richards Boulevard, West El Camino Avenue, Pebblestone Way, San Juan Road, Gateway Park/Natomas Marketplace, Arena Boulevard, Arco Arena, East Town Center, North Natomas Town Center, Club Center Drive/North Village Center, and Sacramento International Airport (RT 2007b).

WAPA Sacramento Area Voltage Support

The Western Area Power Administration (WAPA), a power marketing administration within the United States Department of Energy, is proposing to construct the Sacramento Area Voltage Support (SVS) project to meet increasing electrical demands due to regional growth and to reduce system overloads (WAPA 2006). The project consists of constructing approximately 40 miles of new 230-kilovolt (kV) double-circuit transmission line from O'Banion Substation in Sutter County to the Natomas Substation northwest of the I-80/Northgate Boulevard interchange. The transmission line would consist of a series of steel lattice towers, on each side of which would be a circuit consisting of three conductors (Tuggle pers. comm.).

The first segment of the project would terminate just north of the ABFS Action Area, at the northeast end of the NCC. From there, the project may follow one of seven alternative alignments to the Natomas substation located northwest of the I-80/Northgate Boulevard Interchange. A 2004 Record of Decision identified a preferred alternative, 2C, which trends

southeast from the NCC to an existing transmission right of way near Locust Road, from whence it trends south and then west of south to a SMUD easement at the Elverta substation near East Levee Road, and finally south to the Natomas substation (WAPA 2006). This is the alternative shown in **Figure 4-1** of this document; however a different alternative could ultimately be selected. The alternatives differ in alignment but are similar in impacts (WAPA 2007).

The project would also include rerouting an existing transmission line that runs north and south near the Sutter County/Placer County line so that it turns east when it is north of Baseline Road, runs east-west for about four miles, and then runs south for about two miles to the existing Cottonwood-Roseville 230-kV transmission line (WAPA 2006).

The southern segment of the project would consist of rebuilding an existing 115/230-kV transmission line between the Elverta and Natomas substations. In total, the project would result in about 72 acres of construction disturbance and 30 acres of long-term disturbance; of this, segments 1 and 2C are outside of the Natomas Basin. The remaining segment 3 would be responsible for about 7 acres of short-term disturbance and 3 acres of long-term disturbance within the ABFS Proposed Action Area.

SMUD Powerline-Elkhorn Substation Capacity Expansion

The Sacramento Municipal Utility District (SMUD) proposes to expand the capacity of a substation located north of Elkhorn Boulevard on the west side of Power Line Road adjacent to the Sacramento International Airport according to a 2007 CEQA initial study and mitigated negative declaration prepared for SMUD (CH2M Hill 2007). The purpose of this project is to fulfill increased electrical demand created by modernization of the airport terminal and also to increase service to the Metro Air Park area. The substation capacity would be increased from 16.25 megavolt-amperes (MVA) to 50 MVA by replacing two transformers (CH2M Hill 2007).

This project would import about 1,000 cubic yards of fill and expand a 0.62-acre site by about 0.5 acre to the south, permanently converting the land from open space and agricultural use to facilities use (CH2M Hill 2007). In addition to the two large transformers, there would be new concrete slabs, fencing, switchgear, circuit breakers, and associated equipment. The site would be surrounded by at least an 8-foot fence topped with wire.

SMUD Metro Air Park Neighborhood Electric Distribution

The SMUD Metro Air Park Neighborhood Electric Distribution Project is a proposal to expand electrical facilities in the Metro Air Park vicinity. It includes the construction of two new substations and approximately five miles of 69-kilovolt (kV) subtransmission line. The substations would both be adjacent to the south side of the Central Main Canal; the first, Lot 6,

would occupy a 1.35-acre parcel adjoining Power Line Road, and the second, Lot 44, would occupy a 1.39-acre parcel adjoining Lone Tree Road and its approved extension according to an initial study and mitigated negative declaration on the project (CH2M Hill 2006). Each substation site would be surfaced with crushed rock outside of the concrete facilities foundations and would consist of two 25 MVA transformers and associated facilities. The site perimeters would be fenced with 10-foot masonry walls topped with wire.

According to CH2M Hill (2006), the subtransmission line features would consist of the following:

- converting an existing single circuit 69-kV line to a double circuit line along Elverta Road from Power Line Road to Lone Tree Road;
- constructing a new double circuit 69-kV line along Power Line Road between Elkhorn Boulevard and Elverta Road; and
- constructing a new double circuit 69-kV line between Elkhorn Boulevard and Elverta Road along an alignment either following Lone Tree Road and its extension or following parcel lines approximately 600-900 feet west of Lone Tree Road.

4.2 OTHER PROJECTS

Natomas Basin Habitat Conservation Plan

The NBHCP (City of Sacramento, Sutter County, and TNBC 2003) was developed to promote biological conservation in conjunction with expected economic and urban development in the Natomas Basin. The NBHCP establishes a multi-species conservation program to minimize and mitigate the expected loss of habitat values and incidental take of "covered species" that could result from urban development and operation and maintenance of irrigation and drainage systems in the Natomas Basin. The NBHCP currently authorizes take associated with 17,500 acres of urban development in southern Sutter County and within the City and County of Sacramento. USFWS approved the NBHCP in 2003.

The NBHCP's reserve acquisition and management activities are implemented by TNBC, a private, nonprofit organization that began operating in 1998 and whose mission is to serve as "plan operator" of the NBHCP. TNBC receives mitigation fees paid by developers and other NBHCP participants. These funds are used to acquire, establish, enhance, monitor, and manage mitigation lands in perpetuity. As development within the Natomas Basin occurs, and as TNBC acquires mitigation lands, site-specific management plans are prepared, adopted, and implemented by TNBC to ensure that the objectives of the NBHCP are fulfilled. As of March 2007, roughly 4,200 acres of mitigation property had been acquired in the Natomas Basin

(Roberts pers. comm.) (see **Figure 3-1**). The giant garter snake and Swainson's hawk are the NBHCP's primary focus; however, habitat improvements in the Natomas Basin as a result of TNBC's land acquisitions are expected to benefit other special-status species, such as the burrowing owl, tricolored blackbird, white-faced ibis, greater sandhill crane, vernal pool fairy shrimp, and VELB.

Changes in Cropping Patterns in the ABFS Proposed Action Area

Cropping patterns in Natomas Mutual's service area vary from year to year. No restrictions are placed on individual landowners as to the type of crops that they can plant in any year; however, there are soil limitations. On certain lands within its service area, soil conditions limit the types of crops that can be grown successfully. The trend in recent years has been to grow more rice for economic reasons. While rice crops have provided the best economic returns in recent years, this could change in the future.

Given the poor economic climate associated with other traditional crops grown in the Natomas Basin (e.g., processing tomatoes, field corn, sugar beets, winter wheat, safflower, and oats), it is possible that a greater number of acres in Natomas Mutual's service area will be converted to irrigated rice acreage over the short-term and possibly permanently. Irrigated rice acreage could increase by more than 30 percent in the future in Natomas Mutuals service area, as has been evidenced in recent years.

The ABFS Proposed Action would not have any influence over the type of crops that are grown, or the conversion of existing cropland to rice. The amount of water that is being diverted from the Sacramento River for irrigation of agricultural lands would not change as a result of the ABFS Proposed Action.

On the other hand, the urbanization of the Natomas Basin has resulted, and will continue to result, in decreasing acreages of farmed lands. **Table 4-3** presents the acreages of various crop types within the planned developments listed in this chapter. While the area encompassed by these planned developments is only a portion of Natomas Mutual's service area, data indicate a decrease in farmed acreage from 10,565 to 6,567 between 2004 and 2006. This includes a small net loss of rice acreage, principally in the Natomas Joint Venture Urban Reserve area.

Table 4-3 Summary of Agriculture Acreage Affected by Planned Urban Development

Urban Development	Crop	2004 (ac)	2005 (ac)	2006 (ac)
Sutter Pointe Specific Plan	Rice	4252	4472	4060
	Wheat	0	109	0
	Wild Rice	239	0	374
	Total	4491	4581	4434
Additional Blueprint Development	Rice	596	484	478
	Wild Rice	0	0	123
	Total	596	484	601
Airport Master Plan	Alfalfa	0	40	175
	Corn	168	0	65
	Rice	219	219	219
	Safflower	130	0	0
	Sunflower	0	30	0
	Wheat	190	0	0
	Total	707	289	459
Metro Air Park	Pasture	10	10	12
Natomas Joint Venture Urban Reserve	Clover	127	0	0
	Hay	0	126	0
	Rice	4500	4098	901
	Total	4627	4224	901
Greenbriar	NA			
North Natomas Community	NA			
Camino Norte	Corn	0	0	16
	Melons	0	0	2
	Sunflower	0	9	84
	Tomatoes	32	0	18
	Wheat	102	65	40
	Subtotal	**134**	**74**	**160**
	Total	**10,565**	**9,662**	**6,567**

Notes:
1. Crop acreages are based on Natomas Mutual's billing records. Fallowed fields and fields irrigated with supplemental water are not included in totals.
2. Areas of planned urban development from map provided in Figure 4-1.

4.2.1 METHODOLOGY FOR CONDUCTING CUMULATIVE ANALYSIS

Analyzing the contribution of the ABFS Proposed Action to cumulative effects involves a three-step process. First, the impacts of the ABFS Proposed Action that could contribute to cumulative impacts are identified. Second, those cumulative projects for which environmental analyses have been published are identified. Third, the impacts of each of the cumulative projects identified in Step 2 are identified. Fourth, the contributions of the ABFS Proposed Action to cumulative impacts, based on the identified environmental impacts of the ABFS Proposed Action and the cumulative projects, are described.

4.2.2 ANALYSIS OF CUMULATIVE IMPACTS

STEP 1: IDENTIFY IMPACTS OF THE ABFS PROPOSED ACTION THAT COULD CONTRIBUTE TO CUMULATIVE IMPACTS

The ABFS Proposed Action would **not** contribute to a cumulative impact where:

- no direct project impacts are identified.
- direct project impacts are identified, but they have been mitigated to such an extent that no substantial residual impact would occur.
- direct project impacts are identified, but they are localized in nature or so specific to the project that they could not contribute to cumulative effects.
- direct project impacts are identified, but the timeframe of the impact would be temporary or otherwise not substantially overlap the timeframe of the impacts of the cumulative projects.
- direct project impacts are identified, but none of the other projects in the cumulative project list would contribute to the same effect.

Table 4-4 lists all of the issue areas analyzed in this EIS/EIR where the ABFS Proposed Action could contribute to cumulative impacts. Some specifics regarding the types of impacts are also provided.

Table 4-4 Issue Areas Where the ABFS Proposed Action Could Contribute to Cumulative Impacts

Issue Area	Direct Project Impacts That Could Contribute to Cumulative Impacts
Aquatic Biology	Loss of aquatic habitat due to loss of SRA and riparian habitats, and removal of instream woody material.
Terrestrial Biology	Disturbance to nesting Swainson's hawks; disturbance to giant garter snakes; disturbance to northwestern pond turtles; disturbance to burrowing owls; loss of VELB habitat; loss of riparian and shaded riverine aquatic (SRA) habitat; loss of riparian scrub, annual grassland, and ruderal habitats; impacts to resident and migratory wildlife; loss of wetlands; loss of mature trees.
Cultural Resources	Potential impacts to sites CA-SAC-17, CA-SAC-485/H, and CA-SUT-84-H.
Agricultural Resources	Environmental impacts related to permanent agricultural land use changes.
Aesthetics	Changes in the viewshed from the Sacramento River and the Garden Highway; degradation of existing visual character.

Table 4-5 lists all of the issue areas analyzed in this EIS/EIR where the ABFS Proposed Action does not have the potential to contribute to cumulative impacts. The reasons for reaching this conclusion are summarized in the table, and discussed in more detail in the text that follows.

Table 4-5 Issue Areas Where ABFS Proposed Action Would Not Contribute to Cumulative Impacts

Issue Area	Reason Why ABFS Proposed Action Would Not Contribute to A Cumulative Impact
Hydrology and Water Quality	The ABFS Proposed Action would only contribute temporary increases to degradation of water quality during construction. The Proposed Construction Measures contained in the Project Description would reduce the level of impacts to such a small amount that the project would not make a considerable contribution to cumulative impacts.
Air Quality	The ABFS Proposed Action would only contribute temporary increases in emissions during construction. No additional emissions would occur during project operations, so the project would not make a considerable contribution to cumulative impacts.
Geology and Soils	The ABFS Proposed Action has the potential to contribute to temporary increases in erosion during construction. However, the effects would be very small and temporary, and extensive measures are included in the project description to prevent erosion, so the project would not contribute to cumulative erosional effects.
Hazards and Hazardous Materials	The ABFS Proposed Action has the potential to contribute to temporary hazard-related impacts during construction. However, the effects would be very small and temporary, and measures are included in the project description to minimize exposure of the public to hazardous materials, so the project would not make a considerable contribution to cumulative impacts.
Land Use, Land Use Planning, and Recreation	The ABFS Proposed Action would not be in conflict with existing land use zoning and designations or plans and policies. Conflicts with existing or planned uses would be very small even before mitigation. Impacts on recreation would be temporary and would not involve prohibiting access to any recreation sites, only temporary detours. The project would therefore not make a considerable contribution to cumulative impacts.
Noise	The ABFS Proposed Action would only contribute temporary and minor increases in noise levels during construction. No additional contribution to noise levels would occur during project operations. Therefore, the project would not make a considerable contribution to cumulative impacts.
Transportation and Circulation	The ABFS Proposed Action would only contribute temporary increases in traffic levels during construction. No additional traffic levels would be generated during operation of the project. The ABFS would only contribute to impacts on traffic safety during construction. No contributions to degradation in traffic safety would occur during project operations. Therefore, the project would not make a considerable contribution to cumulative impacts.
Energy and Depletable Resources	The ABFS Proposed Action would involve energy usage during project construction but would result in slight decreases in energy usage during operations. However, the equipment used to operate the

Issue Area	Reason Why ABFS Proposed Action Would Not Contribute to A Cumulative Impact
	system would be new and more efficient than the equipment it replaces, so the project would not make a considerable contribution to cumulative impacts.
Indian Trust Assets	No Indian Trust Assets were identified in the ABFS Action Area.
Environmental Justice	No minority or low income populations exist in the ABFS Action Area. Therefore, the ABFS Proposed Action would not create any environmental justice impacts and would not contribute to a cumulative impact.

STEP 2: IDENTIFYING CUMULATIVE PROJECTS WITH PUBLISHED ENVIRONMENTAL DOCUMENTATION

The list of cumulative projects was analyzed to identify those projects for which a public environmental document has been prepared. For those projects where no public environmental document has been prepared, information on their environmental impacts is not yet available, so the contribution of these projects to cumulative impacts in the Natomas Basin cannot be determined. **Table 4-6** lists all of the cumulative projects described above, indicating those for which public environmental documents are available, and those for which they are not. The last column indicates whether each project was included in the cumulative analysis, and, if not, why.

Table 4-6 Environmental Documentation Status of Cumulative Projects

Cumulative Project	Environmental Status	Include in Cumulative Analysis
North Natomas Community Plan	EIR and Supplemental EIR published. (City of Sacramento 1994)	Yes.
Natomas Joint Vision Plan	EIR in preparation.	No, EIR not yet published.
Greenbriar Project	Draft and Final EIR published in 2006. (EDAW 2002, EDAW AECOM 2006)	Yes.
Sacramento Area Council of Governments (SACOG) Sacramento Region Blueprint	No EIR prepared for blueprint scenarios. However, a draft EIR on the Metropolitan Transportation Plan, based on the blueprint scenarios, has been published (SACOG 2007)	No, EIR does not provide information at a useful level of detail for analyzing impacts in the Natomas Basin.
South Sutter County Specific Plan and Sutter County Measure M	EIR in preparation; due in 2008.	No, EIR not yet published.
Natomas Metro Air Park HCP	EIR published in March 1993 (DERA 1993). Supplemental EIR published in August 1997 (DERA 1997).	Yes.
Camino Norte/Leona Circle	EIR in preparation.	No, EIR not yet published. (may change if EIR is published).
City of Sacramento General Plan Update	Preparation of an EIR will begin after plan is completed in 2008.	No, plan not completed and EIR not yet published.
County of Sacramento General Plan Update	EIR in preparation.	No, EIR not yet published.
Water Forum Agreement Projects	No EIR will be prepared for the plan as a whole. Only project in the Natomas Basin is the Sacramento River Water	No, effects of one project in the Natomas Basin will be evaluated separately (see below).

Cumulative Project	Environmental Status	Include in Cumulative Analysis
	Reliability Study (see below).	
Sacramento River Water Reliability Study	EIR in preparation (McHale pers. comm.)	No, EIR not yet published.
Sacramento Valley Integrated Regional Water Management Plan	No EIR will be prepared for the plan as a whole. Environmental documents will be prepared for individually funded projects (Manley pers. comm.)	No, environmental documents not yet published.
Upper Northwest Interceptor Project	EIR published in 2005 (DERA 2005)	Yes.
Sacramento Area Flood Control Agency (SAFCA)/Corps Natomas Levee Improvement Program	Program EIR published in 2006 (EDAW AECOM 2006). Project-level EIR for 2008 landside work published in 2007.	Yes.
DWR/Corps Critical Erosion Site Repairs	No environmental documentation prepared.	No, environmental documentation not published.
Sacramento International Airport Expansion	Environmental analysis done as part of Sacramento International Airport Master Plan Study (Parsons Brinckerhoff 2004)	Yes.
Metro Air Parkway/Interstate 5 Interchange	EIR published in 2006 (DERA 2006)	Yes.
CALTRANS I-80 Across The Top Bus/Carpool Lanes Project	EIR published in 2007 (FHWA and CALTRANS 2007)	Yes.
Placer Parkway Corridor Preservation Project	EIR published in 2007 (PCTPA 2007)	Yes.
Improvements to State Route 99 Between I-5 and Elverta Road	Environmental analysis conducted as part of Project Study Report (Dokken Engineering 1999)	Yes.
Highway 99/Riego Road Interchange	Environmental analysis conducted as part of Project Report (Dokken Engineering 2002)	Yes.
Regional Transit Downtown-Natomas-Airport (DNA) Light Rail	EIR in process; due in late 2007 (RT 2007b).	No. (may change if EIR is published).
WAPA Sacramento Area Voltage Support	EIR published in 2003 (WAPA 2003)	Yes.
SMUD Powerline-Elkhorn Substation Capacity Expansion Project	IS/MND published in 2007 (CH2M Hill 2007)	Yes.
SMUD Metro Air Park Neighborhood Electric Distribution Project	IS/MND published in 2006 (CH2M Hill 2006)	Yes.
Natomas Basin Habitat Conservation Plan	EIS/EIR published in 2002 (CH2M Hill 2002)	Yes.
Changes in Cropping Patterns in the ABFS Proposed Action Area	Not a project under CEQA.	No.

STEP 3: IDENTIFY THE IMPACTS OF THE CUMULATIVE PROJECTS FOR THE SELECTED ISSUES FROM STEP 1.

Table 4-7 provides a summary of the environmental impacts of the cumulative projects for which environmental analysis has been completed. Impacts are listed only for those issue areas for which a contribution to cumulative impacts has been identified for the ABFS Proposed Action (see **Table 4-4**). Cumulative impacts are listed for the SAFCA NLIP only. The EIR for this project was completed in 2007 and the project involves activities in many of the same geographic locations as the ABFS Proposed Action. As such, the information in the EIR regarding cumulative impacts can be helpful to the analysis for the ABFS Proposed Action.

The projects listed in Table 4-6 for which no environmental documents have yet been published may also contribute to cumulative impacts on aquatic resources, special-status species, and important habitats (e.g., Swainson's hawk, giant garter snake, and burrowing owl), cultural resources, agricultural resources, and aesthetics. However, because no environmental documents have been published for these projects, it is not possible to specify these impacts at this time.

Table 4-7 Summary of Impacts of Cumulative Projects for Selected Issue Areas

Cumulative Projects	Project Impacts				
	Terrestrial Species	**Aquatic Species**	**Cultural Resources**	**Agricultural Impacts**	**Aesthetics**
North Natomas Community Plan	Removal of trees containing active Swainson's hawk nests causing the abandonment of nests due to construction activities near them. (SU) Loss of wooded riparian and wetland habitat. (LTS) Conversion of agricultural lands used as rice fields to urban uses, causing loss of seasonal wetlands. (SU) Conversion of agricultural lands, other than rice fields, to urban uses, causing loss of wildlife habitat values. (SU) Loss of wetland habitat and acreage from areas other than rice fields. (SU) Loss of giant garter snake habitat. (SU) Potential loss of riparian nesting habitat for Swainson's hawk. (SU) Loss of Swainson's hawk foraging habitat. (SU) Direct losses of burrowing owls and/or their habitat. (SU) Loss of riparian and wetland habitat at Fisherman's Lake and the East Drainage Canal. (SU)	Potential to generate short-term dust and erosion impacts during construction activities, such as grading and earth moving, which could impact water quality via increased turbidity, and subsequently could impact biological resources.	Not addressed in 1994 Draft EIR.	Conversion of approximately 12,670 acres of farmland to urban uses. (SU)	Not addressed in 1994 Draft EIR.

Cumulative Projects	Project Impacts				
	Terrestrial Species	**Aquatic Species**	**Cultural Resources**	**Agricultural Impacts**	**Aesthetics**
Greenbriar Project	Loss of giant garter snake habitat (permanent 55.56 acres; temporary 3.31 acres) (LTS) Removal of approximately 546 acres of potential Swainson's hawk foraging habitat on-site and potential disturbance of nesting in the vicinity of the project site (LTS) Loss of 14.15 acres of juris-dictional wetlands, including 9.43 acres of farmed wetlands, 1.34 acres of seasonal marsh, and 3.38 acres of ditch/canal. (LTS) Disturbance or removal of special-status plant species. (LTS) Modifications to burrowing owl habitat. (LTS) Effects to northwestern pond turtle. (LTS) Local tree protection ordinance. (NI)	No effects.	Damage or destruction of significant documented cultural resources. (NI) Potential impacts to undocumented cultural resources. (LTS) Potential to uncover human remains. (LTS)	Conversion of 518 acres of important farmlands. (SU) Conflict with agricultural zoning and Williamson Act contracts. (NI)	Substantially alter the visual character of the project site through conversion of agricultural land to developed urban uses, resulting in a significant aesthetic impact related to degradation of visual character. (SU)
Metro Air Park	Loss of 94 acres of non-jurisdictional palustrine emergent wetlands/ruderal vegetation and 5 acres of non-jurisdictional palustrine shrub/scrub wetlands. (LTS) Loss of 830 of Swainson's hawk foraging habitat. (LTS) Loss of 1,067 acres of giant garter snake habitat and adverse effects on giant garter snake habitat due to runoff from newly urbanized areas. (LTS)	Loss of fish habitat in drainage canals and ditches. (LTS)	Not evaluated.	The project would result in the conversion of 1,535 acres of prime farmland. (SU)	Impacts to travel corridors were not considered a significant impact. (LTS)

Cumulative Projects	Project Impacts				
	Terrestrial Species	**Aquatic Species**	**Cultural Resources**	**Agricultural Impacts**	**Aesthetics**
Northwest Interceptor Project	Possible conflict with local policies or ordinances protecting biological resources. (LTS) Disturbance or loss of waters of the United States and non-jurisdictional wetlands. (SU) Disturbance or loss of waters of the United States and non-jurisdictional wetlands. (SU) Potential loss of western pond turtles and potential loss of habitat, resulting in possible adverse population effects. (SU) Potential disturbance of giant garter snakes and potential loss of giant garter snake habitat, resulting in possible adverse population effects. (SU) Potential loss or disturbance of active Swainson's hawk nests resulting in possible adverse population effects. (SU) Loss or disturbance of riparian habitats. (SU) Potential disturbance of VELB habitat, resulting in possible adverse population effects. (SU) Loss of disturbance of woodland communities and native or other protected trees. (SU)	Potential direct and indirect impacts on Special-Status fish species resulting in possible adverse population effects. (SU)	Potential disturbance of unknown buried cultural resources during construction of the Master Plan facilities. (SU) Possible disturbance of unknown buried paleontological resources during construction of the Master Plan facilities. (SU)	Potential disturbance of unknown buried cultural resources during construction of the Master Plan facilities. (SU) Possible disturbance of unknown buried paleontological resources during construction of the Master Plan facilities. (SU)	Construction may cause long term impacts to visual resources along the Dry Creek Parkway, Elkhorn Boulevard, and East Drainage Canal. (LTS)
Sacramento Area Flood Control Agency (SAFCA)/Corps Natomas Levee Improvement Program*	Effects on sensitive habitats, including wetlands, other waters of the United States, riparian habitats, and protected trees. (LTS) Effects on VELB. (LTS) Effects on giant garter snake,	Loss of fish habitat through increased sedimentation, turbidity, and contaminants. (LTS) Loss of overhead cover and instream woody	Potential to cause a substantial adverse change in the significance of CA-SAC-485/H due to canal construction. Construction effects on	Conversion of important farmland to non-agricultural uses. (SU) Cumulative: Convert prime farmland and farmland of statewide	Individual levee and channel improvements could include levee features and the permanent removal of trees or other elements of viewsheds that may adversely affect the scenic qualities of individual

Cumulative Projects	Project Impacts				
	Terrestrial Species	**Aquatic Species**	**Cultural Resources**	**Agricultural Impacts**	**Aesthetics**
	including disturbance and temporary and permanent loss of aquatic and upland habitats (LTS) Direct and indirect adverse effects to suitable habitat for northwestern pond turtle. (LTS) Loss of active Swainson's hawk nests. (LTS) Loss of occupied burrowing owl burrows and active nests of special-status birds and common birds that are protected under the MBTA and Fish and Game Code. (LTS) Cumulative: contribute to the loss or degradation of sensitive habitats and to adversely affect special-status species, including Swainson's hawks, burrowing owls, other nesting raptors, giant garter snakes, VELB, and others. (LTS)	material. (LTS) Cumulative: Temporarily degrade fish habitat during construction activity through the direct release of soil and construction materials into water bodies or the indirect release of contaminants into water bodies through runoff. (LTS) Implementing erosion protection treatments could result in the loss of components of SRA habitat (overhead cover and instream woody material). (LTS)	known prehistoric and historic cultural resource sites. (LTS) Damage or destruction of previously undiscovered cultural resources. (SU) Discovery of human remains during construction. (LTS) Cumulative: Losses of archaeological resources, adding to a historical trend in the loss of these resources. (SU)	importance to non-agricultural uses. (SU)	sites in the program study area. These changes could result in substantial adverse effects on scenic vistas, scenic resources, or the visual character or quality of these sites. (SU) Cumulative: Removal of trees, other vegetation, and possibly agricultural structures where the levee toe needs to be widened or a berm would be constructed; the removal of vegetation and other features that currently add to the rural and riverine character of views in the area; contributing to the substantial degradation of scenic resources in Natomas that are expect to result as the area's visual character changes from rural agricultural landscape to urban/suburban setting. (SU)
Sacramento International Airport Expansion	Loss of 7.49 acres of wetlands. (LTS) Loss of previously unidentified elderberry shrubs. (LTS) Loss of 3.86 acres of suitable giant garter snake habitat and 2.74 acres of marginal giant garter snake habitat. (LTS) Loss of 0.57 acre of suitable northwestern pond turtle habitat. (LTS) Loss of 267 acres of Swainson's	Not evaluated.	Damage or destruction of previously undiscovered prehistoric or archaeological resources. (LTS)	Loss of 190 acres of prime farmland. (LTS)	Alteration of the airport's vividness, intactness, and unity by relocation of the Traffic Control Tower and construction of additional buildings. (LTS)

Cumulative Projects	Project Impacts				
	Terrestrial Species	**Aquatic Species**	**Cultural Resources**	**Agricultural Impacts**	**Aesthetics**
	hawk foraging habitat. (LTS) Loss of individual burrowing owls. (LTS) Removal of 8 valley oak trees totaling 125 inches diameter at breast height (dbh), 21 valley oak trees less than 6 inches dbh, and several native cottonwood and willow trees. (LTS)				
Metro Air Parkway/Interstate 5 Interchange	Potential impacts on giant garter snakes, Swainson's hawks, and wetlands. The Metro Air Park has an approved Habitat Conservation Plan (MAP HCP) that includes off-site improvements such as the proposed interchange. Protected MAP HCP lands will be dedicated to TNBC, subject to appropriate approvals, to be managed in perpetuity for the benefit of species selected for mitigation. (LTS)	No effects.	Potential impacts to undocumented cultural resources. (LTS)	The loss of less than 50 acres of prime farmland. (LTS)	Construction will not substantially degrade the visual character or quality of the project site. (LTS) A new source of light would be introduced as a result of the project. (LTS)
CALTRANS I-80 Across The Top Bus/Carpool Lanes Project	Temporary impacts to 3.0 acres of giant garter snake upland habitat. (LTS)	Minimal effects on steelhead, Pacific lamprey, river lamprey, and Sacramento splittail in the Natomas East Main Drainage Canal. (LTS)	No effects to cultural resources. Potential impacts to paleontological resources can be avoided by following a properly designed and implemented avoidance program. (LTS)	No loss of agricultural lands.	No visual/aesthetics effects in the vicinity of the Sacramento River or the Garden Highway.
Placer Parkway Corridor Preservation Project	Impacts to federally-protected wetlands. (SU) Impacts to VELB and giant garter snake. (LTS) Impacts to riparian habitats (LTS) Cumulative habitat loss and habitat fragmentation. (SU)	Crossing impacts on steelhead or fall-run Chinook salmon. (LTS)	Effect of construction on RD1000, a National Register- and California Registry of Historic Resources-eligible property. (SU) Impacts on as-yet	Conversion of agricultural land, including Williamson Act land, to infrastructure-related uses. (SU) Conflicts with General Plan and agricultural plan policies for agricultural land	Adverse change in visual character and quality of the study area. (SU) Additional light and glare. (LTS)

Cumulative Projects	Project Impacts				
	Terrestrial Species	**Aquatic Species**	**Cultural Resources**	**Agricultural Impacts**	**Aesthetics**
			undiscovered archaeological resources or human or paleontological remains. (LTS)	preservation. (SU)	
Improvements To State Route 99 Between I-5 And Elverta Road**	Loss of foraging habitat for the Swainson's hawk, giant garter snake, burrowing owl, and VELB.	Not evaluated.	Potential effects on previously undiscovered cultural resources.	Not evaluated.	No impacts in the vicinity of the Sacramento River or the Garden Highway were identified.
Highway 99/Riego Road Interchange	Loss of giant garter snake habitat. (LTS)	Not evaluated.	No effect.	Loss of Prime Farmland and Farmland of Statewide Importance. (LTS)	No impacts identified.
WAPA Sacramento Area Voltage Support	Disturbance of giant garter snake habitat. Disturbance of vernal pool habitat. Short-term effects from construction in wetlands. Long-term effects from structures sited in wetlands, vernal pools, and other waters of the United States. (no significance determination)	Potential effects on Central Valley steelhead and Chinook salmon. (no significance determination)	None.	Loss of Prime and Unique Farmland.	No impacts in the vicinity of the Sacramento River or the Garden Highway were identified.
SMUD Powerline-Elkhorn Substation Capacity Expansion Project	Impacts on Swainson's hawk, giant garter snake, and burrowing owl. (LTS)	No impact.	No impact.	Loss of Prime Farmland and Farmland of Statewide Importance. (LTS)	No impacts in the vicinity of the Sacramento River or the Garden Highway were identified.
SMUD Metro Air Park Neighborhood Electric Distribution Project	Impacts on Swainson's hawk, burrowing owl, western pond turtle, and giant garter snake. (LTS)	No impact.	No impact.	Loss of Prime Farmland and Farmland of statewide importance. (LTS)	No impacts in the vicinity of the Sacramento River or the Garden Highway were identified.

Cumulative Projects	Project Impacts				
	Terrestrial Species	**Aquatic Species**	**Cultural Resources**	**Agricultural Impacts**	**Aesthetics**
Natomas Basin Habitat Conservation Plan	Urbanization would lead to loss of habitat for VELB, giant garter snake, northwestern pond turtle, Swainson's hawk, and burrowing owl. HCP is intended to mitigate all impacts. (LTS)	No impact.	Potential impacts to cultural resources on an ongoing basis could result from operation and maintenance activities. (LTS)	Conversion of agricultural lands. However, lands would be converted to habitat reserves; such a conversion would not represent an irretrievable loss of the lands to urban development. (LTS)	Not evaluated.

Only impacts related to impacts of the ABFS Proposed Action are included.

Significance levels of impacts, after mitigation, are included in parentheses.

SU = Significant and Unavoidable; LTS = Less Than Significant; NI = No Impact; BI = Beneficial Impact.

* - Includes listing of cumulative impacts.

**- The environmental analysis was not a CEQA or NEPA document, so no significance conclusions were reached.

STEP 4: ANALYZE THE CUMULATIVE IMPACTS OF THE ABFS PROPOSED ACTION

The following analysis of the cumulative impacts is based on information in Chapter 3. *Affected Environment and Environmental Consequences*, and the information provided in published environmental documents for the projects listed above in **Table 4-7**.

TERRESTRIAL RESOURCES

Impact: Cumulative Impact on Special-Status Species and Loss of Habitats

The environmental impact analysis presented in Section 3.1: *Terrestrial Biology*, identified potential adverse impacts to species and their habitats from implementation of the ABFS Proposed Action. No impacts were determined to be significant and unavoidable.

The following terrestrial biology impacts have been determined to be less than significant after adoption of mitigation measures:

- Disturbance to nesting and foraging Swainson's hawks
- Disturbance to giant garter snakes
- Disturbance to northwestern pond turtle
- Loss of VELB habitat
- Loss of riparian forest and shaded riverine aquatic habitat
- Impacts to resident and migratory wildlife
- Loss of wetlands
- Loss of mature trees

Implementation of the ABFS Proposed Action has the potential to contribute to the loss or degradation of sensitive habitats, including SRA habitat, seasonal wetlands, and riparian forest, and to adversely affect several special-status wildlife species, including the Swainson's hawk, giant garter snake, VELB, and burrowing owl. Most of the potentially adverse effects of the ABFS Proposed Action related to wildlife would be associated with temporary construction disturbances to individuals and their habitats, but permanent loss of certain habitats would also result from some of the individual improvements. These effects could contribute to the further decline of certain species and habitat losses that have led to the need for protection under the ESA and CESA. Similar potential for adverse effects on special-status species and their habitats would be associated with the substantial urban growth expected in the northern portion of Sacramento County, particularly in the Natomas Basin (see list of projects in Section 3.1). New growth and urbanization would continue to reduce suitable foraging and nesting/breeding habitat for wildlife in the Natomas Basin.

Implementation of the mitigation measures in Chapter 3: *Terrestrial Biological Resources* (Section 3.1.2: *Environmental Consequences*), would ensure that the effects of the ABFS Proposed Action are reduced or avoided in accordance with the requirements of the ESA and CESA and other regulatory programs that protect habitats, such as Section 1602 of the CDFG Code. In addition, Natomas Mutual has agreed to become a signatory to the NBHCP and has developed its own internal take avoidance, minimization, and mitigation measures for ongoing maintenance of canals and other water conveyance features (see **Appendix F, Attachment 5**).

The ABFS Proposed Action would also have benefits to listed species, such as the giant garter snake, by providing increased and improved connectivity between known populations, increased aquatic habitat in the form of new canals, and by including habitat features such as hibernacula and refugia benches into the project design. Refugia benches would be managed for giant garter snakes by allowing a diversity of vegetation to become established alongside steep-sided adjacent bank slopes.

Because the ABFS Proposed Action includes the following components, the project's contribution to impacts on terrestrial species would not be cumulatively considerable: 1) Natomas Mutual would implement avoidance and other mitigation measures in accordance with the requirements of the ESA, CESA, and Section 1602 of the CDFG Code, 2) it would include additional habitat protection and/or replacement and enhancement components into the ABFS Proposed Action, 3) it has agreed to become a signatory to the NBHCP, and 4) it has developed its own BMPs for the minimization and avoidance of take to Covered Species. Although the ABFS Proposed Action would contribute to a cumulative impact on riparian habitat, including SRA, this would be offset by the benefit to fisheries that the project would have to attain the goals presented in the MSCS (CALFED 2000c). The ABFS Proposed Action would not make a considerable contribution to cumulative impacts on other terrestrial resources.

AQUATIC BIOLOGY

Impact: Cumulative Impact on Fisheries or Aquatic Resources

The environmental impact analysis presented in Section 3.3: *Aquatic Biology*, identified potential adverse impacts to species and their habitats from implementation of the ABFS Proposed Action. All aquatic biology impacts have been determined to be less than significant or beneficial, including:

- Species of primary management concern in the Sacramento River – Impacts from facility and canal construction – access routes, staging areas, and storage and disposal areas (all three phases)

- Species of primary management concern in the Sacramento River – Impacts from facility and canal construction – in-stream construction activities (all three phases)
- Species of primary management concern in the Natomas Cross Canal – Impacts related to facility removal activities (all three phases)
- Species of primary management concern – Impacts related to impingement and entrainment due to operation of diversion facilities (all three phases)
- Species of primary management concern – Impacts related to consolidation and operation of diversion structures (all three phases)
- Species of primary management concern – Impacts related to changes in predation (all three phases)
- Species of primary management concern in the Sacramento River – Impacts resulting from operations (all three phases)
- Species of primary management concern – Impacts resulting from maintenance activities (all three phases)
- Species of Primary Management Concern – Impacts to fish within the water distribution canals (all three phases)
- Impacts on other fish species present in the ABFS Action Area (all three phases)

Of the proposed projects described above that are within the geographic scope of the Natomas Basin (i.e., ABFS Study Area), there are only a few that would involve activities that could affect hydrologic conditions in the Sacramento River or NCC and aquatic or riparian habitats located in proximity to the Sacramento River or NCC. Thus, for analytical purposes related to fisheries and aquatic resources, only those projects that could affect fish species of primary management concern that inhabit the Sacramento River are included in the cumulative impacts analysis. Although most of the proposed projects described above could have project-specific impacts that will be addressed in future project-specific environmental documentation, future implementation of these projects is not expected to result in cumulative impacts to regional water supply operations, or water-related and water dependent resources that also could be affected by the ABFS Proposed Action or an action alternative. For this reason, only the limited number of projects that have the potential to cumulatively impact aquatic resources in the ABFS Action Area are specifically considered in the cumulative impacts analysis for fisheries and aquatic resources. These projects are:

- Sacramento Area Water Forum Agreement Projects
- Sacramento River Water Reliability Study
- Sacramento Area Flood Control Agency Natomas Levee Improvement Program
- Department of Water Resources/U.S. Army Corps of Engineers Critical Erosion Site Repairs

- Caltrans I-80 Across the Top Bus/Carpool Lanes Project
- Natomas Basin Habitat Conservation Plan

It can be reasonably assumed that the impacts of these projects could result in potentially significant construction-related cumulative impacts on aquatic resources. However, the ABFS Proposed Action is not expected to contribute to environmental impacts that may result from the other projects listed above, because the ABFS Proposed Action will incorporate Proposed Construction Measures and mitigation measures that will reduce the construction-related impacts to a very small residual amount. Further, the construction-related effects of the ABFS Proposed Action will occur only during the relatively short construction period of each diversion.

Related to operations and maintenance of the ABFS Proposed Action, the potential exists for fish impingement and entrainment to occur at the proposed Sankey and Elkhorn diversions. However, this effect would be greatly reduced by the ABFS Proposed Action and the SRWRS project, which would be beneficial to fish because they would replace existing unscreened intake structures with state-of-the-art fish screens in compliance with current NMFS and CDFG screening criteria. The additional presence of the proposed SRWRS intake structure and fish screen in the lower Sacramento River would further increase the total surface area of submerged in-river screen against which fish could become impinged or entrained. However, the relatively wide channel and the large volume of flow in this section of the Sacramento River, coupled with similar but independent commitments described for the ABFS Proposed Action and for the SRWRS project to design the intake structures to limit the potential for undesirable hydraulic effects, and to comply with the most recent NMFS and CDFG screening criteria, minimizes or avoids cumulative impingement or entrainment impacts. Additionally, for the ABFS Proposed Action, a Post Construction Evaluation and Assessment Plan and Fish Screen Operations Procedure Plan (Operations and Maintenance Plan) has been prepared (**Appendix F, Attachment 3**) and will be provided to USFWS, NMFS, and CDFG for review and approval prior to implementation.

As discussed earlier under Hydrology and Water Quality, maintenance-related activities associated with the ABFS Proposed Action and the SRWRS project (i.e., the intake structure and fish screen associated with the Elverta Diversion) have the potential to disturb areas adjacent to the Sacramento River as a result of vehicular travel to the site facilities, and to cause channel disturbance due to in-river dredging or other activities that may be required to clean and maintain the fish screen and the intake structures at each project site. Based on similar water diversion facilities that are in operation within the region, it is anticipated that in-river maintenance work associated with the ABFS Proposed Action would be required to occur only once every three or four years, depending upon the effects of seasonal flooding and the associated accumulation of

debris on the diversion structures. Short-term maintenance activities are generally assumed to not violate water quality objectives (PCWA and Reclamation 2001) and likely would not result in turbidity or sedimentation impacts to the extent that they would degrade habitat conditions for aquatic resources. Short- and long-term maintenance activities associated with the ABFS Proposed Action probably would not be occurring simultaneously with maintenance activities associated with the SRWRS, and activities related to both projects would be conducted in compliance with identified regulatory permits and approvals.

While the ABFS Proposed Action would have minor short-term construction-related adverse effects on aquatic resources, it would have a long-term beneficial effect by screening all of Natomas Mutual's currently unscreened diversions. Therefore, it would not make a considerable contribution to cumulative impacts on aquatic resources in the ABFS Study Area.

CULTURAL RESOURCES

Impact: Cumulative Impacts on Cultural Resources

The environmental impact analysis presented in Section 3.4: *Cultural Resources* of this EIS/EIR identified potential adverse effects to cultural resources from implementation of the ABFS Proposed Action. The following impacts were identified as less-than-significant after the adoption of mitigation:

- Impacts to Site CA-SAC-485-H

The following impacts were identified as less than significant:

- Impacts to Site CA-SAC-17
- Impacts to Site CA-SUT-84-H
- Impacts related to the removal of the existing diversion facilities

Although the ABFS Proposed Action has the potential to adversely affect previously identified cultural resources, only one of the cumulative projects has the potential to affect the same cultural resources as the ABFS Proposed Action. The SAFCA/Corps NLIP has the potential of disturbing SAC-485/H. The NLIP would relocate the Elkhorn Main Canal landward and cover SAC-485/H with a seepage berm. However, it is extremely unlikely that the SAFCA/Corps NLIP and the ABFS Proposed Action would both impact SAC-485/H. The re-grading of the Elkhorn Main Canal would occur under Phase II of the ABFS Proposed Action, which is not yet funded, and would likely not be funded for several years. The relocation of the Elkhorn Main Canal as part of the NLIP is scheduled to occur within the next two years. Should that occur, that portion of the ABFS Proposed Action would not be undertaken by Natomas Mutual, and SAC-485/H would only be impacted by the NLIP. Therefore, the ABFS Proposed Action would

not contribute to a cumulatively considerable impact. For more information about the relationship of the ABFS Proposed Action and the NLIP

AESTHETICS

Impact: Cumulative Visual Quality Degradation

The environmental impact analysis presented in Section 3.5: *Aesthetics* of this EIS/EIR identified potential adverse effects to visual resources from implementation of the proposed ABFS Proposed Action. The following impacts have been determined to be less than significant:

- Changes in the viewshed
- Degradation of existing visual character

The following impacts have been determined to be less than significant after mitigation:

- New source of substantial light or glare due to construction that would adversely affect day or nighttime views in the area
- New source of substantial light or glare from security lighting that would adversely affect day or nighttime views in the area

The ABFS Proposed Action would create visual impacts to travelers along the Garden Highway and on the Sacramento River. This analysis focuses on cumulative impacts on these viewsheds. The ABFS Proposed Action would introduce facilities that would create a noticeable visual contrast with the character of the surrounding riparian landscape, and would result in the removal of riparian vegetation along the Sacramento River for construction of the proposed facilities. Additional development in the Natomas Basin, and the construction of levee improvements by SAFCA as described in Section 4.1.3, would result in further degradation of the scenic environment and a change in visual character from a rural agricultural landscape to an urban/suburban setting. Design guidelines and grading measures included in many of the projects would act to ensure that all development would be designed and constructed in a manner compatible to the area. Although the ABFS Proposed Action would result in minor adverse aesthetic affects resulting from the construction of two new diversion facilities, the beneficial effects of the removal of diversion and other facilities, and the implementation of the Proposed Construction Measures, would offset these adverse effects, and the ABFS Proposed Action would not contribute to a cumulatively considerable impact.

For light and glare effects, Mitigation Measure AES-3 would reduce potential project-level impacts to less-than-significant levels. While additional development in the Natomas Basin, as described in Section 4.1.1, would result in increased nighttime glare and light impacts in a

relatively dark environment, the effects of the ABFS Proposed Action would be localized and located distant from the effects of other projects and would thus not make a contribution to a cumulatively considerable effect.

AGRICULTURAL RESOURCES

Impact: Cumulative Loss of Agricultural Resources

The environmental impact analysis presented in Section 3.6: *Agricultural Resources* of this EIS/EIR identified potential adverse effects to agricultural resources from implementation of the proposed ABFS Proposed Action. The following agricultural resource impact has been determined to be less than significant:

- Environmental impacts related to agricultural land use changes

The cumulative impact analysis for agricultural resources includes impact on agricultural land throughout the Natomas Basin. The ABFS Proposed Action would convert agricultural lands to agriculture-supporting uses, including water supply and canal improvements. Approximately 40 acres of area designated as prime farmland and 4 acres designated as Farmland of Statewide Importance would be directly converted from agricultural uses for construction of project facilities. According to the most recent data available from FMMP, the above loss of farmland represents approximately 2.2 percent of prime farmland conversion in Sacramento and Sutter counties, and 0.07 percent of Farmland of Statewide Importance conversion (FMMP 2004c and 2006b). The ABFS Proposed Action would permanently remove these areas from agricultural production and incrementally contribute to the cumulative loss of prime farmland in Sacramento and Sutter counties.

Additional development in the Natomas Basin as described in Section 4.1.1 would result in the cumulative conversion of over 14,000 acres of agricultural land to residential and commercial development, which is a cumulatively significant impact. However, the ABFS Proposed Action facilities are intended to support existing agricultural uses and would convert a relatively small amount of agricultural land. Therefore, construction of the project would not contribute to a cumulatively considerable loss of agricultural resources.

4.3 GLOBAL CLIMATE CHANGE

Impact: Cumulative Impacts on Global Climate Change

Global Climate Change (GCC) refers to past and future changes in the average global temperature and the changes in global climate that are projected to occur as a result. Recent reports from the Intergovernmental Panel on Climate Change have confirmed that global temperatures are increasing and assigned a high probability that human activities are a primary cause of GCC. In particular, the scientific consensus is that the accumulation of greenhouse gases (GHG) (mainly carbon dioxide) in the Earth's atmosphere due to human activities such as the burning of fossil fuels has led to historical GCC and is projected to lead to further GCC over then next 100 years.

Executive Order S-3-05

The Governor of California signed Executive Order S-3-05 on June 1, 2005. The order recognizes California's vulnerability to climate change, noting that increasing temperatures could potentially reduce snowpack in the Sierra Nevada Mountains, which serves as one of the state's primary sources of water. The order also mandates the following reductions in California's greenhouse gas emissions: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels.

Assembly Bill 32 – California Global Warming Solutions Act

The California Global Warming Solutions Act of 2006 (AB 32) was signed into law on September 27, 2006. With the Governor's signature, the Health and Safety Code (Section 38501, Subdivision (a)) now states the following:

> *"Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems."*

This bill requires the California Air Resources Board, in coordination with other state agencies and members of the private and academic communities, to adopt regulations to require the

reporting and verification of statewide greenhouse gas emissions and to monitor and enforce compliance with this program.

CEQA and NEPA Requirements Regarding Global Climate Change

There are currently no published thresholds of significance for measuring the impact of GCC on, or from, a project (Hendrix and Wilson 2007). The CEQA guidelines contain no specific direction regarding whether to or how to address GCC in EIRs. Several lawsuits are currently pending that relate to the requirements under CEQA to address GCC in EIRs. "In the absence of regulatory guidance and prior to the resolution of CEQA challenges regarding GCC impact analysis, CEQA documents may choose to address GHG emissions on a case-by-case basis using methods tailored to the project's circumstances and individual interpretation of existing CEQA guidance" (Hendrix and Wilson 2007).

There is also no guidance from the Council on Environmental Quality (CEQ) regarding whether to, or how to address GCC in EISs, under NEPA.

Effects of Global Climate Change on the ABFS Proposed Action

GCC has the potential to impact California's natural resources and water supply system in a variety of ways. These effects would occur through a number of mechanisms, including: changes in average air temperature; changes in the timing, intensity, and form of precipitation (rain versus snow); and changes in sea level. These, in turn, could change runoff patterns, reservoir storage levels and operations, river volumes, river temperatures, water quality, and patterns of flooding. Although there is general consensus about the trends, there is still considerable uncertainty about the magnitude of these effects.

Some of the environmental changes likely to occur due to GCC could affect the ABFS Proposed Action. The new diversion facilities are designed to allow Natomas to divert water at a range of Sacramento River flows based on historic river levels and Sacramento River flows that are regulated by releases from upstream storage facilities. Sacramento River flows during the summer could fall below this range, thus placing the water level below the optimum level for the diversion of water and screening of fish. Similarly, high winter and spring flows, above the levels for which the facilities have been designed, could damage the facilities.

Rising sea levels would push the salinity gradient in the Delta upstream. There is considerable uncertainty as to the amount of sea level rise that can be expected over then next 100 years. The CALFED Independent Science Board recommends "…it is prudent to use existing empirically-based models for short to medium term planning purposes. The most recent empirical models project a mid-range rise this century of 70-100 cm (28-39 inches, with a full range of variability

of 50-140 cm (20-55 in.)" (Mount 2007). Even a sea level increase of 39 inches would not likely have a significant effect on Natomas Mutual's water quality, because its diversions are 13.5 to 19 miles upstream of the current upstream extent of tidal influence (generally considered to be the I Street Bridge in Sacramento.

Effects of the ABFS Proposed Action on Global Climate Change

Section 3.12: *Transportation and Circulation*, describes the trips expected to be generated by the ABFS Proposed Action. The ABFS Proposed Action would generate an extremely small number of construction-related trips over the period of project construction. It would not generate any new vehicle trips during operations.

Section 3.13: *Energy and Depletable Resources*, describes the amount of energy required to operate the ABFS Proposed Action, and a relative description of the energy required to construct the ABFS Proposed Action, compared to Alternatives 1 and 2.

Based on these results, the ABFS Proposed Action would contribute an extremely small amount to the emission of greenhouse gases. As the name implies, GCC is occurring due to human activity worldwide, and it is a significant cumulative impact. However, since the project will only increase GHG emissions during the construction period and is not expected to substantially change operational emissions compared to current conditions, it will not impair the state's ability to meet the mandates of AB 32 or Executive Order S-3-05.

4.4 GROWTH INDUCEMENT AND SECONDARY EFFECTS

Growth-inducing impacts can occur when an action leads to unplanned growth, or growth that occurs faster than envisioned by adopted public plans and policies. The CEQ regulations specify that the project effects analyzed in an EIS include:

> Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems (40 CFR 1508.8).

Section 15126.2(d) of the CEQA Guidelines requires that an EIR identify any growth-inducing impacts which may result from a project. The CEQA Guidelines define a growth-inducing impact as:

> …the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth… It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Induced growth as defined in this section of CEQA includes the direct employment, population, or housing growth of a project as well as the secondary or indirect growth accompanying direct growth. New employees from commercial development and new population from residential development represent direct growth and induce additional economic activity in a given area from the increase in aggregate spending generated as purchases of goods and services. New employment also adds to the demand for local housing, although since all employees employed in a given community will not necessarily live in that community, this housing demand increase will be less than the increase in employment. A project can induce growth by lowering or removing infrastructure barriers to growth, improving transportation access to an area, introducing a new use into an area, or by creating an amenity such as tourist-oriented facilities which attract new population or economic activity.

4.4.1 DIRECT GROWTH INDUCEMENT

The ABFS Proposed Action would result in the demolition of six existing diversions, decommissioning and removal of the Verona Diversion Dam and Lift pumps, construction of two new diversions, and the upgrading of water distribution-related facilities. Temporary employment would be generated during the construction phase. Sacramento County reported a 5.6 percent unemployment rate for 2004, with a labor force of 659,300 and 36,900 unemployed persons, and Sutter County reported a 14.4 percent unemployment rate for 2004, with a labor force of 37,800 and 5,400 unemployed persons (EDD 2004). Due to a slowing housing market, unemployment increased in July 2007, especially in construction (EDD 2007a; EDD 2007b). Therefore, needed construction workers would be available from the local labor pool without drawing new workers to the area. The ABFS Proposed Action would not result in the creation of additional housing units or additional permanent employment, nor would it require that additional housing resources be developed elsewhere. Therefore, no direct growth inducement would occur with implementation of the ABFS Proposed Action.

4.4.2 REMOVAL OF INFRASTRUCTURE OR INSTITUTIONAL BARRIERS TO GROWTH

A project may induce growth by removing an infrastructure barrier to growth. Infrastructure barriers can be both physical (e.g., lack of a road for access or sufficient sewage treatment

capacity), or they can be institutional (e.g., the lack of some regulatory condition or capacity to allow development to occur.

Implementation of the Proposed Action would result in new diversions and pump station facilities similar to existing facilities to provide water to their existing shareholders. The Natomas Mutual water supply is licensed for Irrigation, Municipal, Industrial, and Domestic uses, with Municipal, Industrial, and Domestic uses limited to lands zoned for such uses. The Proposed Action would maintain Natomas Mutual's existing diversion capacity of 630 cfs and would not result in additional water supply for Natomas Mutual.

As described in Section 1.9 of this document, Natomas Mutual has entered into an agreement with American States Utility Services to oversee water treatment and distribution for current and future municipal and industrial customers in South Sutter County. That agreement has already occurred and is independent of the ABFS Proposed Action, so it would not be a growth-inducing effect.. In the absence of the project, the agreement would be fulfilled using existing Natomas Mutual facilities. If existing water diversions were to be utilized for uses other than those currently licensed, it would require a change in purpose of use or place of use, and additional projects to be approved for the construction of distribution and water treatment facilities. All of these actions would require permitting before appropriate federal, state, and local agencies, and would be subject to additional environmental review pursuant to NEPA and CEQA. Such actions also would not be dependent on the ABFS infrastructure. Further, Sutter County has indicated its desire to provide water to any new development in south Sutter County.

Natomas Mutual has no control over land development, economics, or crop selection. Although Natomas Mutual has taken preliminary steps to prepare for development should they be called upon to serve municipal and industrial users, the ABFS Proposed Action neither supports nor discourages future development. Natomas Mutual does not own or operate treatment or conveyance systems to serve municipal or industrial water users. The ABFS Proposed Action does not expand Natomas Mutual's surface water supply nor does it provide additional infrastructure to support municipal and industrial water users.

Therefore, the ABFS Proposed Action would not induce growth beyond that which has been approved in long-term planning documents, nor remove a barrier to growth. Section 4.1.4 of this document addresses the cumulative impacts of planned long-term growth in the ABFS Action Area.

4.5 RELATIONSHIP BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

Implementation of the ABFS Proposed Action would result in short-term construction related impacts to water quality, aquatic and terrestrial biological resources, and air quality. In addition, the ABFS Proposed Action would include short-term construction noise, ground disturbance, construction traffic, and roadway closures. There would be a direct conversion of riparian forest, riparian scrub, and SRA habitat (see Impact TB-6 for acreage lost due to each diversion). This direct loss of riparian and SRA habitat would eliminate some existing opportunity for future use and productivity; however, implementation of Mitigation Measure TB-6 would result in compensation for the loss or disturbance to SRA habitat at a 3:1 ratio. While there would be a short-term direct conversion of habitat for special status species such as the giant garter snake, construction of the ABFS Proposed Action would result in an increase in habitat available to giant garter snakes once vegetation, refugia, and a prey base become established. Additional short-term adverse impacts include potential increase in turbidity, suspended solids, sedimentation, and bank erosion during construction, potential for accidental spills or seepage of hazardous materials during construction, and fish stranding resulting from cofferdam placement and removal. However, these potential adverse effects would be minimized by implementation of mitigation measures discussed in Section 3.2: *Biological Resources – Aquatic Biology*. Moreover, these short-term impacts are expected to be outweighed by long-term beneficial effects associated with operations of the consolidated diversions equipped with state-of-the-art screens. These beneficial effects include: (1) reduction in entrainment losses of species of primary management concern; (2) reduction in the obstruction to fish and permanent removal of potential fish passage impediment; (3) reduction in artificial microhabitats utilized by predators; (4) reduction of disturbance of aquatic life and floor sediments; and (5) reduction in the extent and magnitude of disturbance resulting from maintenance activities. In addition, the removal of existing structures such as the Verona Diversion Dam would allow the area to revert to a more natural state.

4.6 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

An irreversible and irretrievable commitment of resources would result from both primary and secondary impacts of implementing the ABFS Proposed Action.

Minor changes in land use resulting from implementation of the ABFS Proposed Action would be irreversible. For example, direct takes of small areas of land for construction of the new diversions and re-grading and widening of interior canals and ditches would result in permanent changes in land use.

Implementation of the ABFS Proposed Action would require both direct and indirect expenditures of energy. Indirect energy would be consumed by the use of construction materials for the project (e.g., energy resource exploration, power generation, mining and refining of raw materials into construction materials used, including placement). Direct energy impacts would result from the total fuel consumed in vehicle propulsion (e.g., construction vehicles and heavy equipment) and operation of the water pumping plants. Implementation of the ABFS Proposed Action would represent an increase in energy use during construction and continued use of energy over the life of the project similar to existing conditions, although the use of new modern pumps would be more energy efficient than the five old pumping plants.

Construction of the ABFS Proposed Action would also require a commitment of a variety of other non-renewable or slowly renewable natural resources. These resources include, but would not necessarily be limited to, lumber and other forest products, sand and gravel, asphalt, petrochemicals, metals, and water.

4.7 EFFECTS FOUND NOT TO BE SIGNIFICANT

As stated in the Notice of Preparation (NOP) and Notice of Intent (NOI) for the ABFS Proposed Action, based on preliminary scoping, it was determined that three environmental issue areas did not need to be evaluated in this EIS/EIR. The reasoning for this determination is set forth below:

- **Population and Housing** – The areas affected by the action alternatives are not zoned for housing and are not identified as important areas for potential housing development by Sacramento and Sutter counties. Also, while construction of the action alternatives would necessitate hiring short-term workers and maintenance of the fish screens may require the addition of one employee, these positions would likely be filled from the local community, and would not directly lead to substantial population growth. Implementation of the No Action/No Project Alternative, the Proposed Action, and Alternative 1 would not displace any existing residences or exacerbate a housing shortage. While removal of an existing residential dwelling at the proposed site for the new Prichard Diversion would be required under Alternative 2, the removal of one dwelling would not create or exacerbate a housing shortage. There are no relocation requirements for the removal of this dwelling. Therefore, potential impacts to population and housing were determined to be less than significant and were not evaluated in this EIS/EIR.

- **Public Services** – There would be no impacts to fire and police emergency services with implementation of the ABFS Proposed Action alternatives. In addition, the ABFS Proposed Action would not physically affect any schools and would not increase demand for schools. While the action alternatives would include alterations of existing RD 1000 facilities, there are no significant impacts associated with these alterations. The ABFS Proposed Action would not affect any other government services. Therefore, potential impacts to public services were determined to be less than significant and were not evaluated in this EIS/EIR.
- **Utilities/Service Systems** – The ABFS Proposed Action alternatives would not: require extension of power lines; require the use of natural gas; require the development of new communication systems; increase the demand for water and therefore require construction of new water facilities or expansion of existing facilities; require expansions of water treatment facilities; require the construction of storm drainage systems; or, create an increase in solid waste and therefore conflict with state or local requirements related to solid waste or affect landfill capacity. Therefore, potential impacts to utilities and service systems were determined to be less than significant and were not evaluated in this EIS/EIR.

The following environmental effects evaluated in this EIS/EIR were found to be less than significant, to create no impact, or to create a beneficial impact, and no mitigation was required:

- Disturbance to burrowing owls (all three phases)
- Loss of VELB habitat (Phases I and III)
- Loss of riparian forest and shaded riverine aquatic habitat (Phase III)
- Loss of annual grassland and ruderal habitats (all three phases)
- Loss of wetlands (Phase III)
- Species of primary management concern in the Sacramento River – Impacts from facility and canal construction – access routes, staging areas, and storage and disposal areas (all three phases)
- Species of primary management concern in the Sacramento River – Impacts from facility and canal construction – in-stream construction activities (all three phases)
- Species of primary management concern in the Natomas Cross Canal – Impacts related to facility removal activities (all three phases)
- Species of primary management concern – Impacts related to impingement and entrainment due to operation of diversion facilities (all three phases)
- Species of primary management concern – Impacts related to consolidation and operation of diversion structures (all three phases)

- Species of primary management concern – Impacts related to changes in predation (all three phases)
- Species of primary management concern in the Sacramento River – Impacts resulting from operations (all three phases)
- Species of primary management concern – Impacts resulting from maintenance activities (all three phases)
- Species of Primary Management Concern – Impacts to fish within the water distribution canals (all three phases)
- Impacts on other fish species present in the ABFS Action Area (all three phases)
- Impacts on compliance with water quality standards or waste discharge requirements (all three phases)
- Increase in sediment and turbidity in the Sacramento River resulting from construction (all three phases)
- Changes to sediment and turbidity in the Sacramento River resulting from project operations and maintenance activities (all three phases)
- Impacts on the water quality of the Sacramento River associated with runoff water (all three phases)
- Impacts on stormwater drainage system (all three phases)
- Impacts on groundwater supplies (all three phases)
- Impacts on flooding (all three phases)
- Impacts to Site CA-Sac-17 (all three phases)
- Impacts to Site CA-SAC-485/H (Phases I and III)
- Impacts to Site CA-Sut-84-H (all three phases)
- Impacts related to the removal of the existing diversion facilities (all three phases)
- Changes in the viewshed (All three phases)
- Degradation of existing visual character (All three phases)
- New source of substantial light or glare from security lighting that would adversely affect day or nighttime views in the area (Phase III)
- Environmental impacts related to agricultural land use changes (all three phases)
- Construction related air emissions (all three phases)
- Emissions during project operations (all three phases)
- Potential exposure of sensitive receptors to air emissions during construction (all three phases)
- Exposure to liquefaction (all three phases)
- Potential for shrinking/swelling of soils (all three phases)
- Potential for soil erosion (all three phases)
- Routine use or transport of hazardous materials (all three phases)

- Release of hazardous materials (all three phases)
- Exposure to wildland fires (all three phases)
- Consistency with adopted land use and zoning designations (all three phases)
- Consistency with adopted land use goals and policies (all three phases)
- Disrupt or divide the physical arrangement of an established community (all three phases)
- Disrupt or reduce access to recreational resources (all three phases)
- Noise exposure due to facility construction (all three phases)
- Noise exposure due to project operations (all three phases)
- Increase in traffic during the construction period (all three phases)
- Potential exceedance of the adopted level of service standard (all three phases)
- Potential road hazards and inadequate emergency access due to temporary road closures (all three phases)
- Impacts to traffic safety due to reconstruction of the Garden Highway/Sankey Road intersection (all three phases)
- Wasteful and inefficient use of energy and depletable resources in operation of the Natomas Mutual system (all three phases)
- Effects on ITAs (all three phases)
- Disproportionate environmental and health effects on minority or low-income populations (all three phases)

The following potentially significant environmental effects evaluated in this EIS/EIR were found less than significant after mitigation:

- Disturbance to nesting and foraging Swainson's hawks (all three phases)
- Disturbance to giant garter snakes (all three phases)
- Impacts to northwestern pond turtle (all three phases)
- Loss of VELB habitat (Phase II)
- Loss of riparian forest and shaded riverine aquatic habitat (Phases I and II)
- Impacts to resident and migratory wildlife (all three phases)
- Loss of wetlands (Phases I and II)
- Loss of mature trees (all three phases)
- Impacts to Site CA-SAC-485/H (Phase II)
- New source of substantial light or glare due to construction that would adversely affect day or nighttime views in the area (all three phases)
- New source of light or glare due to security lighting that would adversely affect day or nighttime views in the area (Phases I and II)
- Land use compatibility with existing or planned uses (all three phases)

4.8 UNAVOIDABLE ADVERSE EFFECTS

No significant and unavoidable adverse environmental effects were identified for the ABFS Proposed Action or the alternatives as evaluated in this EIS/EIR.

5 CONSULTATION AND COORDINATION

5.1 PUBLIC SCOPING

As part of environmental document preparation, both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) require an early and open process for information gathering involving the public and interested agencies. The objective of this effort, referred to as the scoping process, is to: (1) identify public and agency concerns; (2) facilitate an efficient environmental document preparation process; (3) define issues and alternatives that will be examined in detail in the environmental document; and, (4) ensure that the environmental document adequately addresses all relevant issues.

During scoping, federal, state, and local regulatory agencies, as well as interested citizens and private organizations, are asked to identify key environmental issues and alternatives that they believe should be addressed in the environmental document. The scoping process involves informing agencies, the general public, and organizations of the ABFS Proposed Action, conducting interagency scoping meetings, and holding public scoping meetings. Agency and public comments received during scoping are used to identify issues and alternatives, make factual corrections, evaluate alternatives, modify and improve the analysis, and contribute to decision making.

As required by CEQA, the Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the proposed *American Basin Fish Screen and Habitat Improvement Project* (ABFS Proposed Action) was filed with the Office of Planning and Research (OPR) on September 2, 2003 (State Clearinghouse Number 2003092006); the NEPA Notice of Intent (NOI) of an Environmental Impact Statement (EIS) was published in the Federal Register on October 22, 2003. Both the NOP and NOI were circulated to the public, local, state, and federal agencies, and other interested parties to solicit comments on the ABFS Proposed Action (see **Appendices B and C** for copies of the NOP and NOI).

Three public scoping meetings were held for the proposed ABFS Proposed Action, including two scoping meetings on September 15, 2003, at 1:30 p.m. and 7:00 p.m. and one scoping meeting on November 20, 2003 at 6:30 p.m. Comments provided by agencies, the public, and interested organizations during the scoping meetings and subsequent 45-day public review period are summarized below. Substantive NEPA and CEQA-related issues raised during this public and agency scoping process were used in the design of proposed facilities, alternatives evaluated, studies conducted, and mitigation measures proposed.

SUMMARY OF SCOPING ISSUES

Comments were received from several members of the public at the September 15 and November 20, 2003 scoping meetings. Because of the format of the meetings, these commentors were not identified. The speakers expressed concern regarding the following substantive NEPA and CEQA-related issues:

- benefits, cost, and durability of fish screens;
- construction period effects due to silt accumulation;
- maintenance requirements of fish screens;
- water quality impacts;
- effects to adjacent residents including aesthetics, traffic, and noise;
- impacts of existing water diversions on fish and potential benefit of proposed fish screen;
- project effects on riparian and aquatic habitats;
- historic and cultural resources;
- alternatives to the project;
- construction period effects on adjacent residents, including impacts to aesthetics, traffic, and noise;
- impacts on private landowner property and riparian rights; and
- landowner water rights.

To the extent possible, these comments have been reflected in the design of the alternatives and range of issues addressed in this EIS/EIR.

Comments were also received in written correspondence from agencies and the public during the scoping period (see **Table 5-1** below). The major issues brought forth and where they are addressed in the EIS/EIR include the following:

- Potential impacts to traffic and circulation (Section 3.12);
- Potential impacts to cultural resources (Section 3.4);
- Relationship of the ABFS Proposed Action with other projects in the area (Chapters 1 and 4);
- Evaluation of future conditions and ultimate development in the ABFS Action Area (Chapters 2, 3, and 4);
- Coordination of utility infrastructure and planned future development (Section 1.10 and Chapter 3);
- Compliance with permitting requirements (Sections 1.8 and 1.9).

Copies of written correspondence received from the public and interested organizations during the scoping process are included in **Appendix G**.

Table 5-1 List of Agencies and Individuals that Provided Written Comments on the ABFS Proposed Action During Scoping

Agency/Individual Commenting	Date of Comment
State of California, Department of Water Resources	September 12, 2003
Burton H. Lauppe	September 15, 2003
Kevin McRae	September 15, 2003
State of California, Department of Transportation (Caltrans), District 3	September 17, 2003
State of California, California State Lands Commission	September 23, 2003
County of Sacramento, Public Works Agency	September 23, 2003
County Sanitation District 1 (CSD-1)	October 1, 2003
City of Sacramento	October 2, 2003
James P. Pachl	October 31, 2003
United States Environmental Protection Agency Region IX	November 21, 2003
Mathew P. and Kelly E. Breese	November 25, 2003
Sacramento County Airport System	December 1, 2003

This Draft EIS/EIR is published and circulated for public and agency comment for a period of 45 days starting from when EPA publishes the "Notice of Availability of Weekly Receipt of Environmental Impact Statements" in the Federal Register, as required by NEPA Regulations and Guidelines (40CFR 1506.10(c) and (d), (516 DM 4.26A). Written comments from the public and interested and responsible agencies may be submitted at any time during the comment period. Written or emailed comments should be submitted to:

Mr. Bradley Hubbard
U.S. Department of the Interior
Bureau of Reclamation
Division of Resources Management
2800 Cottage Way
Sacramento, California 95825
BHUBBARD@mp.usbr.gov

Mr. James Navicky
California Department of Fish and Game
North Central Region
1701 Nimbus Road
Rancho Cordova, California 95670
jnavicky@dfg.ca.gov

After the close of the comment period, all comments submitted will be responded to in writing. The comments and responses will be published for public review in the Final EIS/EIR. The Final EIS/EIR will consist of the comments and responses, and the text of the Draft EIS/EIR, including any revisions necessary to respond to comments.

5.2 AGENCIES AND INDIVIDUALS CONSULTED

The ABFS Proposed Action and Draft EIS/EIR have been developed against a backdrop of existing and ongoing federal, state, and local efforts intended to conserve covered and other sensitive species within the ABFS Action Area. An Anadromous Fish Screen Technical Team (Fish Screen Technical Team) was formed to assist Natomas Mutual, Reclamation, and CDFG in formulating the ABFS Proposed Action, developing and screening alternatives, and in designing the proposed fish screens. The Fish Screen Technical Team met as needed over a period of years and oversaw all work in these areas. The members of the Fish Screen Technical Team are listed below:

ANADROMOUS FISH SCREEN PROGRAM (AFSP) TECHNICAL TEAM (2000- 2005)

The AFSP members provided input on the technical issues associated with the design of the fish screens. The technical team included:

Dan Meier (Reclamation)
Bill Dutton (Reclamation)
Debbie Coleman (Reclamation)
William O'Leary (USFWS)
Ryan Olah (USFWS)
Aondrea Bartoo (USFWS)
Steve Thomas (NMFS)
Rick Wantuck (NMFS)
Dan Odenweller (CDFG)
Paul Raquel (CDFG)
Katie Witts (CDFG)
Roger Padilla (DWR)

In addition, the ABFS Agency Technical Team (Agency Team) was formed early on in the process to allow USFWS and NMFS, as well as the Lead Agencies, CDFG and Reclamation, to oversee the preparation of the EIS/EIR and the Action Specific Implementation Plan (ASIP). The Agency Team provided input regarding the development of the ABFS Proposed Action and Alternatives, and the methods used in conducting the analyses. They also have reviewed numerous drafts of both documents. For more detail regarding the participation of the agency technical team, please see *Chapter 1: Introduction*, in **Appendix F**.

Below are a list of agencies and individuals that were consulted during the preparation of this EIS/EIR. Those followed by an asterisk (*) provided comments during the scoping period.

ENDANGERED SPECIES ACT (FESA AND CESA)

Reclamation, CDFG, and Natomas Mutual consulted and coordinated Federal and state ESA issues associated with this project with staff and management from NMFS, USFWS, and CDFG during the preparation of the EIS/EIR and the ASIP (**Appendix F**). Following public review, the ASIP will be submitted to USFWS and NMFS with requests to initiate formal consultation.

FISH AND WILDLIFE COORDINATION ACT (FWCA)

Reclamation, CDFG, and Natomas Mutual coordinated with USFWS during the development of the project to comply with the relevant provisions of the FWCA. The results of this coordination are summarized in a preliminary coordination act report (**Appendix E**).

NATIONAL HISTORIC PRESERVATION ACT (NHPA)

Reclamation consulted with the State Office of Historic Preservation regarding the eligibility of identified properties to qualify for inclusion on the National Register of Historic Places. Its conclusion was that the ABFS Proposed Action would not create adverse effects on historic properties. A letter of concurrence from the State Historic Preservation Office is included in Appendix D. In addition, Reclamation consulted with the Native American Heritage Commission regarding the existence of Native American sacred sites in the project area. The Commission responded that although the sacred lands file did not indicate presence of known Native American cultural resources within the project area it did not negate the potential. The letter is also included in **Appendix D**.

FARMLAND PROTECTION POLICY ACT

Reclamation consulted with NRCS regarding compliance with the Farmland Protection Policy Act. Reclamation provided information for NRCS to prepare a Federal Farmland Conversion Impact Rating assessment (Form 1006) for both Sacramento County and Sutter County. These completed forms are provided in **Appendix A**.

OTHER FEDERAL AGENCIES

National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS)
U.S. Army Corps of Engineers (Sacramento Office)*
U.S. Bureau of Indian Affairs (Sacramento Office)
U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS)
U. S. Environmental Protection Agency Region IX*
U.S. Fish and Wildlife Service (Sacramento Office)

STATE, REGIONAL, AND LOCAL AGENCIES

California Department of Water Resources*
California Department of Transportation*
California State Lands Commission*
California State Office of Historic Preservation*
City of Sacramento*
County of Sacramento, Public Works Agency*
County Sanitation District 1 (CSD-1)*
Reclamation District No. 1000
Reclamation District No. 1001
County of Sutter, Planning Department
County of Sutter, Public Works Department
The Natomas Basin Conservancy

5.3 DOCUMENT DISTRIBUTION LIST

This list identifies Federal, State, regional and local agencies and entities, elected officials and representatives, and private agencies, organizations and individuals that either received a copy of this Draft EIS/EIR or a notification of document availability.

5.3.1 LIBRARIES AND EDUCATIONAL INSTITUTIONS

Hard copies of the Draft EIS/EIR are available at the following locations:

Sacramento Public Library
North Natomas Branch
2500 New Market Drive
Sacramento, CA 95835

California State University Sacramento
University Library
2000 State University Drive East
Sacramento, CA 95819

Sutter County Library
Pleasant Grove Branch
3093 Howsley Road
Pleasant Grove, CA 95668

University of California Davis
Main Library
100 NW Quad
Davis, CA 95616

An electronic copy is available on the Reclamation web site at: http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=783.

5.3.2 FEDERAL AGENCIES

National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS)
U.S. Army Corps of Engineers (Sacramento Office)
U.S. Bureau of Indian Affairs (Sacramento Office)
U.S. Department of Agriculture, Natural Resources Conservation Service
U. S. Environmental Protection Agency Region IX
U.S. Fish and Wildlife Service (Sacramento Office)

5.3.3 FEDERAL AND STATE ELECTED OFFICIALS

Senator Barbara Boxer
Senator Dianne Feinstein
Representative Dan Lundgren
Representative Doris Matsui
Representative Wally Herger
State Senator Darrell Steinberg
State Senator Sam Aanestad
State Assemblyman Doug LaMalfa
State Assemblyman Roger Niello

5.3.4 STATE AGENCIES

California Department of Parks and Recreation
California Department of Water Resources
California Department of Transportation (Caltrans), District 3
California Regional Water Quality Control Board, Central Valley Region 5 (Sacramento)
California Resources Agency
California State Lands Commission
California State Office of Historic Preservation
Central Valley Flood Protection Board
California State Water Resources Control Board
Native American Heritage Commission
Office of Planning and Research

5.3.5 LOCAL AGENCIES, BUSINESSES, AND PUBLIC INTEREST GROUPS

City of Sacramento, Planning Department
City of Sacramento Attorney's Office
City of Sacramento City Manager
County of Sacramento, Department of Public Works
County of Sacramento, Department of Water Resources
County of Sacramento, Planning Department

County of Sacramento, Sanitation District 1 (CSD-1)
Pacific Gas & Electric Company
Placer County Water Agency
Reclamation District No. 1000
Reclamation District No. 1001
Rio Linda Water District
Sacramento Chamber of Commerce
Sacramento County Airport System
Sacramento County Farm Bureau
Sacramento Groundwater Authority
Sacramento Municipal Utility District (SMUD)
Sutter County Department of Public Works, Transportation Division**
Sutter County Planning Department

Associated General Contractors
Building Industry Association of Superior California
MacKay and Somps Civil Engineers
Northern California Water Association
Sacramento-Sierra Building & Construction Trades Council

Audubon Society, Sacramento Chapter
Environmental Council of Sacramento
Friends of the River
Friends of the Swainson's Hawk**
Save the American River Association
Sierra Club, Mother Lode Chapter
The Natomas Basin Conservancy

5.3.6 INDIVIDUALS

Bill Berry
Mathew P. and Kelly E. Breese
Sarah Connick
Bob Hanna
Jennifer Jennings
Brian Jobson
Burton Lauppe
Kevin McRae
Larry Norton
Gerald Schwartz
Jack Sohl
Christian G. Spies **

** requested copy of environmental document

6 LIST OF PREPARERS

This EIS/EIR was prepared by Reclamation, Division of Resources Management, 2800 Cottage Way, Sacramento, CA 95825; and CDFG, North Central Region, 1701 Nimbus Road, Rancho Cordova, California 95670. A list of persons who prepared various sections of the EIS/EIR, completed significant background material, or participated to a significant degree in preparing the document is presented below:

Name	Affiliation	Qualifications	Participation
Marieke Armstrong	Mead & Hunt, Inc.	M.S., Environmental Science; B.S. Ecology, Behavior and Evolution; 9 years experience	Technical Assistance
Henry Bass	Natomas Mutual	B.A., Anthropology with archaeological emphasis; 31 years cultural resources management and general environmental planning	Project Management; Agency Coordination
Paul Bollard	Bollard Acoustical Consultants, Inc.	B.S., Mechanical Engineering; 16 years experience	Noise Technical Analysis
Ellen Bowden	Miriam Green Associates	M.A., Anthropology; 16 years experience	Cultural Resources
Paul Bratovich	HDR/SWRI	M.S., Fishery Resources; B.S., Fisheries; 22 years experience	Aquatic Biology
Eleanor Derr	Cultural Resources Unlimited	M.A., Anthropology; 22 years experience	Cultural Resources
Thomas Duster	HDR/SWRI	B.S., Wildlife Biology, Aquatic Emphasis; 7 years experience	Aquatic Biology
Miriam Green	Miriam Green Associates	M.S., Wildlife Biology; B.S., Biology; 28 years experience	Terrestrial Biology; Project Management; EIS/EIR Technical Editor

Eric Hansen	Miriam Green Associates	M.S., Biology; B.S., Biology; 15 years experience	Giant Garter Snake Assessment
Bradley Hubbard	Bureau of Reclamation	B.A., Environmental Studies, 15 years experience	NEPA/ESA Project Management and Oversight
Mick Klasson	Miriam Green Associates	B.S., Environmental, Policy Analysis and Planning; 18 years experience	Cumulative Impacts
Raadha Jacobstein	Planning Partners	B.A., Environmental Biology; 5 years experience	Land Use, Agricultural Resources, Recreation, Aesthetics
Robert Klousner	Planning Partners	M.C.R.P., City and Regional Planning; 25 years experience	Environmental Document Oversight
Mary Marks	Mead & Hunt, Inc.	10 years experience	Document Preparation
Tami Mihm	HDR/SWRI	B.S., Environmental Policy Analysis and Planning, Water Quality Emphasis; 15 years experience	Aquatic Biology
James Navicky	California Department of Fish and Game	Environmental Scientist III; 15 years experience	CEQA/CESA Project Management and Oversight
Morgan Neal	HDR/SWRI	M.S., Marine Affairs, B.S. Fisheries Biology; 1 year experience	Aquatic Biology
Jamie Nelson	HDR/SWRI	M.S., Environmental Engineering Sciences; B.S., Hydrology; 4 years experience	Hydrology and Water Quality
Allison Niggemyer	HDR/SWRI	M.S., Environmental Science; B.A., Biology and Music; 4 years experience	Hydrology and Water Quality

Jose Perez-Comas	HDR/SWRI	Ph.D., Fisheries, M.S., Fisheries; 22 years experience	Aquatic Biology
Janice Piñero	HDR/SWRI	B.S., Environmental Studies; Minors in Biology and Economics; 8 years experience	Aquatic Biology; Hydrology and Water Quality
Karen Riggs	HDR/SWRI	B.A., Environmental Studies, Minor in Biology; 5 years experience	Aquatic Biology; Hydrology and Water Quality
John Robles	Bureau of Reclamation	B.S., Conservation Biology; B.A. Resources and Environmental Geography; 14 years experience	NEPA/ESA project management and oversight
Valerie Rosenkrantz	Planning Partners	M.B.A., Business Administration; B.S., Environmental Policy Analysis and Planning; 22 years experience.	Air Quality, Transportation, and Circulation
Craig Stevens	Miriam Green Associates	B.S., Environmental Studies; 17 years experience	Project Management; Agency Coordination
Stephen Sullivan	Mead & Hunt, Inc.	B.S., Civil Engineering, 28 years experience	Project Engineer

7 REFERENCES/LITERATURE CITED

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8 FREQUENTLY USED ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ABFS Proposed Action	American Basin Fish Screen and Habitat Improvement Project
ACHP	Advisory Council for Historic Preservation
Acre	43,560 square feet
ADT	Average Daily Traffic
AFRP	Anadromous Fish Restoration Program
ANSI	American National Standards Institute
APSSZ	Alquist-Priolo Special Studies Zone
AQMD	Air Quality Management District
ASIP	Action Specific Implementation Plan
Bay-Delta	San Francisco Bay/Sacramento-San Joaquin River Delta
BMP	Best Management Practice
BOC	Bureau of Census
CAA	Federal Clean Air Act
CAAA	Federal Clean Air Act Amendments of 1990
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCD	Census County Division
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
cfs	cubic feet per second
CFR	Code of Federal Regulations
cm	Centimeters
CNPS	California Native Plant Society
Corps	U.S. Army Corps of Engineers
CO	Carbon Monoxide
COA	Coordinated Operations Agreement
COC	constituents of concern
CTR	California Toxics Rule
CVP	California Central Valley Project
CVPIA	Central Valley Project Improvement Act
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
CY	cubic yards
dbh	diameter at breast height
DEIR	Draft Environmental Impact Report
Delta	Sacramento-San Joaquin River Delta
DOC	California Department of Conservation
DNA	Downtown-Natomas-Airport
DWR	California Department of Water Resources
EFH	essential fish habitat
EIS/EIR	Environmental Impact Statement/Environmental Impact Report
EPA	U.S. Environmental Protection Agency
ERP	Ecosystem Restoration Program
ESA	Federal Endangered Species Act

Acronym/Abbreviation	Definition
ESU	Evolutionarily Significant Unit
FEIR	Final Environmental Impact Report
FHWG	Fisheries Hydroacoustic Working Group
FL	fork length
FPPA	Farmland Protection Policy Act
FWCA	Fish and Wildlife Coordination Act
GHG	greenhouse gases
gpm	gallons per minute
HCP	Habitat Conservation Plan
HHS	Health and Human Service's
HU	Hydrologic Unit
IRWMP	Integrated Regional Water Management Plan
IS	Initial Study
ISA	International Society of Arboriculture
ITAs	Indian Trust Assets
IWM	instream woody material
kV	kilovolt
LESA	Land Evaluation-Site Assessment
LF	linear foot
LOS	Levels of Service
M&I	municipal and industrial
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MBTA	Migratory Bird Treaty Act of 1918
MMRP	Mitigation Monitoring and Reporting Plan
MOA	Memorandum of Agreement
Mph	miles per hour
MSCS	Multi-Species Conservation Strategy
MSL	mean sea level
MVA	megavolt-amperes
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
Natomas Mutual	Natomas Mutual Water Company
NAWQA	National Water Quality Assessment
NBHCP	Natomas Basin Habitat Conservation Plan
NCC	Natomas Cross Canal
NCCP	Natural Community Conservation Plan
NCCPA	Natural Community Conservation Planning Act
NDDB	Natural Diversity Database
NEMDC	Natomas East Main Drainage Canal
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
Nitrogen	A chemical element, commonly used in fertilizer as a nutrient
NLIP	Natomas Levee Improvement Program
NMFS	National Marine Fisheries Service
NNCP	North Natomas Community Plan
NOI	Notice of Intent
NOP	Notice of Preparation
NO_x	Nitrogen Oxides
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System

Acronym/Abbreviation	Definition
NRCS	Natural Resource Conservation Service (formerly U.S. Department of Agricultural, Soil Conservation Service)
NRHP	National Register of Historic Places
NTUs	Nephelometric Turbidity Units
O_3	Ozone
OHWM	ordinary high water mark
OPR	Office of Planning and Research
OSHA	California Occupational Safety and Health Administration
Pb	Lead
PCWA	Placer County Water Agency
PEAR	Preliminary Environmental Assessment Report
PEIS	Final CVPIA Programmatic Environmental Impact Statement (October 1999)
PGCC	Pleasant Grove Creek Canal
PM_{10}	Suspended Particulate Matter; Ten-Micron Particulates
ppd	pounds per day
ppm	parts per million
ppt	parts per thousand
PR	Project Report
PSR	Project Study Report
RBDD	Red Bluff Diversion Dam
RD 1000	Reclamation District No. 1000
Reclamation	Bureau of Reclamation
RM	River Mile
ROD	Record of Decision
ROG	Reactive Organic Gases
RPZ	root protection zone
RST	rotary screw trap
RT	Sacramento Regional Transit District
RWQCB	California Regional Water Quality Control Board – Central Valley Region
SAAQS	State Ambient Air Quality Standards
SACOG	Sacramento Area Council of Governments
SAFCA	Sacramento Area Flood Control Agency
SAM	Standard Assessment Methodology
SEL	sound exposure level
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SL	standard length
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMS	Scenery Management System
SMUD	Sacramento Municipal Utility District
SRA	shaded riverine aquatic
SRWP	Sacramento River Watershed Program
SRWRS	Sacramento River Water Reliability Study
SSWD	South Sutter Water District
SVAB	Sacramento Valley Air Basin
SVS	Sacramento Area Voltage Support
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TL	total length

Acronym/Abbreviation	Definition
TNBC	The Natomas Basin Conservancy
UBC	Uniform Building Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VELB	Valley Elderberry Longhorn Beetle
WSEL	water surface elevations
WQCP	Water Quality Control Plan
YOY	young-of-year

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Appendix A
Federal Farmland Impact Rating Form

NRCS

Natural Resources Conservation Service
9701 Dino Drive, Suite 170
Elk Grove, CA 95624
Phone: 916-714-1104 Extension 3 Fax: 916-714-1117

September 24, 2004

Planning Partners
Attn: Raadha Jacobstein
46-304 Nahewai Street
Kaneohe, HI 96744

RE: AD-1006 for American Basin Fish Screen & Habitat Improvement project

Dear Raadha Jacobstein:

Enclosed are copies of the Form AD-1006 for Farmland Conversion Impact Rating for the Sacramento County American Basin Fish Screen and Habitat Improvement project as requested.

Please let me know, if you have any questions or need any additional information.

Thank you

Surjit S. Toor

Surjit S. Toor
District Conservationist

Ad-1006cs.doc

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 7/14/04
Name Of Project American Basin Fish Screen &Habitat Improvemen	Federal Agency Involved Bureau of Reclamation
Proposed Land Use Agriculture	County And State Sacramento County, CA & Sutter County
PART II *(To be completed by NRCS)*	Date Request Received By NRCS 7/20/04

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply – do not complete additional parts of this form).*	Yes ☒	No ☐	Acres Irrigated 160,000	Average Farm Size 160
Major Crop(s) Rice, Row Crops	Farmable Land In Govt. Jurisdiction Acres: %		Amount Of Farmland As Defined in FPPA Acres: %	
Name Of Land Evaluation System Used	Name Of Local Site Assessment System		Date Land Evaluation Returned By NRCS 9/24/04	

PART III *(To be completed by Federal Agency)*	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	10	16	18	
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site	~~0.0~~ 46	~~0.0~~ 52	0.0 56	0.0
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	10.0	16.0	18.0	
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	.001	.001	.001	
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by NRCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	0	0	0	0

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points				
1. Area In Nonurban Use		14	14	14	
2. Perimeter In Nonurban Use		10	10	10	
3. Percent Of Site Being Farmed		18	18	18	
4. Protection Provided By State And Local Government		20	20	20	
5. Distance From Urban Builtup Area		10	10	10	
6. Distance To Urban Support Services		2	2	2	
7. Size Of Present Farm Unit Compared To Average		0	0	0	
8. Creation Of Nonfarmable Farmland		20	20	20	
9. Availability Of Farm Support Services		0	0	0	
10. On-Farm Investments		0	0	0	
11. Effects Of Conversion On Farm Support Services					
12. Compatibility With Existing Agricultural Use					
TOTAL SITE ASSESSMENT POINTS	160	0 94	0 94	0 94	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	0	0	0	0
Total Site Assessment *(From Part VI above or a local site assessment)*	160	8 94	8 94	0 94	0
TOTAL POINTS *(Total of above 2 lines)*	260	8 94	0 94	0 94	0

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection:

(See Instructions on reverse side)

Form AD-1006 (10-83)

This form was electronically produced by National Production Services Staff

United States Department of Agriculture

NRCS

Natural Resources Conservation Service America's Conservation Agency
1511-B Butte House Rd.
Yuba City, CA 95993
Telephone: 530-674-1461, ext. 3
Fax: 530-674-1480

September 16, 2004

Raadha M. B. Jacobstein
Planning Partners
7620 Lakehill Court
Elk Grove, California 95624

Enclosed is the completed Form AD-1006 for the *American Basin Fish Screen and Habitat Improvement Project.*

Please give us a call if there are further questions.

Gail Moffitt

Gail Moffitt
Soil Conservationist

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 7/14/04
Name Of Project American Basin Fish Screen &Habitat Improvemen	Federal Agency Involved Bureau of Reclamation
Proposed Land Use Agriculture	County And State Sutter County, CA

PART II *(To be completed by NRCS)* Date Request Received By NRCS 9/13/04

Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply - do not complete additional parts of this form)	Yes ☒	No ☐	Acres Irrigated 42,183	Average Farm Size 365
Major Crop(s) 2002 Crop Report rice, prunes, walnuts	Farmable Land In Govt. Jurisdiction Acres: 290,107 % 7.7		Amount Of Farmland As Defined In FPPA Acres: Data Unavailable%	
Name Of Land Evaluation System Used California-Storie System	Name Of Local Site Assessment System		Date Land Evaluation Returned By NRCS 9/16/04	

PART III *(To be completed by Federal Agency)*	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	33	76	47	
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site	~~85~~	~~182~~	~~150~~	0.0
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	29	72	43	
B. Total Acres Statewide And Local Important Farmland	4	4	4	
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	00.0117	00.0256	00.0145	
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by NRCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)	60	59	57	0

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points				
1. Area In Nonurban Use		14	14	14	
2. Perimeter In Nonurban Use		10	10	10	
3. Percent Of Site Being Farmed		18	18	18	
4. Protection Provided By State And Local Government		20	20	20	
5. Distance From Urban Builtup Area		10	10	10	
6. Distance To Urban Support Services		2	2	2	
7. Size Of Present Farm Unit Compared To Average		0	0	0	
8. Creation Of Nonfarmable Farmland		20	20	20	
9. Availability Of Farm Support Services		0	0	0	
10. On-Farm Investments		0	0	0	
11. Effects Of Conversion On Farm Support Services					
12. Compatibility With Existing Agricultural Use					
TOTAL SITE ASSESSMENT POINTS	160	94	94	94	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	~~0~~ 60	0 59	0 57	0
Total Site Assessment *(From Part VI above or a local site assessment)*	160	94	94	94	0
TOTAL POINTS *(Total of above 2 lines)*	260	~~0~~ 154	~~0~~ 153	~~0~~ 151	0

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection:

(See Instructions on reverse side)

Form AD-1006 (10-83)

This form was electronically produced by National Production Services Staff

Appendix B
Notice of Preparation

NOTICE OF PREPARATION

To: Interested Persons

From: California Department of Fish and Game
Sacramento Valley – Central Sierra Region 2
1701 Nimbus Road
Rancho Cordova, California 95670

Contact: James Navicky
(916) 358-2030

Subject: Notice of Preparation of a Draft Environmental Impact Statement / Environmental Impact Report

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Project Title: American Basin Fish Screen and Habitat Improvement Project

Project Location: The Natomas Basin, located in northwestern Sacramento County and southern Sutter County.

Project Sponsor: Natomas Mutual Water Company

The Natomas Mutual Water Company, (NMWC) proposes to construct and operate the American Basin Fish Screen and Habitat Improvement Project (Proposed Project). Implementation of the Proposed Project would result in modification of the NMWC's existing water diversion and distribution system adjacent to the Sacramento River and Natomas Cross Canal in Sacramento and Sutter Counties, California. The U.S. Bureau of Reclamation (USBR) will act as the lead federal agency under the National Environmental Policy Act (NEPA), and the California Department of Fish and Game (CDFG) will act as the state lead agency under the California Environmental Quality Act (CEQA) in the preparation of an Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) for the Proposed Project. Because the project includes federal funding, a joint document will be prepared as a project EIS/EIR.

Pursuant to CEQA, two scoping meetings will be held on September 8, 2003. A 1:30 p.m. meeting will be held to receive comments from responsible, trustee, and interested agency staff, followed by a public scoping meeting at 7:00 p.m. The meetings will be held at the Residence Inn by Marriott, Sacramento, located in the South Natomas area of Sacramento at 2410 West El Camino Avenue, Sacramento, California. Additional scoping meetings as required by NEPA will be held at a later date at times and locations to be determined.

The purpose of this Notice of Preparation (NOP) is to request input from agencies, organizations, and individuals on the scope of the environmental analysis and the alternatives to be included in the environmental document. The lead agencies are requesting comments from public agencies on the scope and content of the environmental information that is pertinent to each agency's statutory responsibilities in connection with the proposed project. Responsible Agencies will

need to use the EIS/EIR prepared for this project when considering permits or other approvals for the project.

The project description, location, and the probable environmental effects are contained in the attached materials. A copy of the Initial Study is not attached.

Due to the time limits mandated by state law, your response must be sent at the earliest possible date, but **not later than 30 days** after receipt of this notice.

Please send your response to James Navicky, at the CDFG address shown above. If an organization or agency, please include the name of a contact person so that we have the ability to contact you further during the EIR preparation process.

Date: _____ **Signature**: _____

James Navicky

cc: State Clearinghouse

DESCRIPTION OF PROJECT LOCATION, ALTERNATIVES AND POTENTIAL ENVIRONMENTAL EFFECTS

PROJECT LOCATION

The project area is located in the Natomas Basin, part of the American River Basin, within the Sacramento Valley of California. It encompasses portions of northwestern Sacramento and southern Sutter counties (Figure 1). The Natomas Basin is bounded by the Sacramento River on the west, the Natomas Cross Canal on the north, the Natomas East Main Drainage Canal on the east, and the American River on the south.

PROJECT BACKGROUND

NMWC is a private mutual water company subject to local land use controls, including those of Sacramento and Sutter counties and the City of Sacramento. The service area of the NMWC includes the entire Natomas Basin, and NMWC controls surface water rights for over 280 landowners within the 55,000-acre Basin. NMWC diverts water from the Sacramento River (generally between River Mile [RM)] 79 and RM 61) and the Natomas Cross Canal to provide irrigation water for agricultural uses and habitat preservation.

NMWC currently maintains five pumping plants along the Sacramento River and the Natomas Cross Canal. These pumping plants divert surface water from the River and Canal into the NMWC service area. The five pumping plants maintain a total maximum water diversion capacity of 630 cubic feet per second (cfs).

Drainage and flood control for the Natomas Basin is provided by Reclamation District 1000 (RD 1000), a public agency that has a coinciding service area with the NMWC and several joint use facilities.

Irrigation water is primarily distributed throughout the service area using NMWC's system of highline canals.[1] NMWC also uses the RD 1000 drainage canal system to distribute water within the service area. River water is pumped into the drainage canal system to be commingled with tailwater.[2] This water is then re-lifted into the highline canal system or delivered directly into the fields.[3]

NMWC currently distributes water through five primary irrigation systems (Figure 2), which are linked and used to support each other. Each irrigation system is served by an unscreened

[1] Highline canals use gravity to deliver water by maintaining water levels above the surrounding ground levels.
[2] Tailwater is water that has drained off of agricultural fields and recollects, through gravity, in drainage canals below the level of surrounding fields.
[3] Relifting is the process of pumping water to a higher elevation to enable gravity flows.

pumping facility located either along the Sacramento River or the Natomas Cross Canal. Brief descriptions of the pumping facilities are set forth below.

- The Northern Pumping Plant, with a total capacity of 250 cfs, is situated along the south bank of the Natomas Cross Canal, approximately 2.5 miles upstream of its confluence with the Sacramento River.
- The Bennett Pumping Plant, with a total capacity of over 125 cfs, is situated along the south bank of the Natomas Cross Canal approximately 1.2 miles upstream of its confluence with the Sacramento River.
- The Prichard Pumping Plant, with a total capacity of 150 cfs, is situated along the east bank of the Sacramento River at approximately RM 75.3.
- The Elkhorn Pumping Plant, with a total capacity of 60 cfs, is situated along the east bank of the Sacramento River at approximately RM 73.3.
- The Riverside Pumping Plant, with a total capacity of approximately 45 cfs, is situated along the east bank of the Sacramento River at approximately RM 65.4.

The Verona Dam and lift pumps operated by the NMWC are located in the Natomas Cross Canal, approximately 0.2 mile upstream from its confluence with the Sacramento River. This facility is utilized during periods of low flow on the Sacramento River, on average three out of every 10 years for two to four months at a time. The facility consists of three removable steel bulkheads and five diesel lift pumps. The bulkheads and pump motors are installed when low water levels in the Natomas Cross Canal create problems with the operation of the Bennett and Northern pumping plants. This facility then pumps water from the Sacramento River into the Natomas Cross Canal, maintaining water levels sufficient to operate the Bennett and Northern pumping plants. During times of high water, and at the end of the irrigation season, the bulkheads and diesel motors are removed

PROJECT ALTERNATIVES TO BE EVALUATED

Based on an initial review of the Proposed Project, CDFG has identified four alternatives to be evaluated in the EIS/EIR. Additional alternatives could be evaluated based on scoping comments and the identification of alternatives capable of reducing or avoiding the significant environmental impacts of the Proposed Project. These alternatives are:

- No-Project Alternative:
- Sankey/Elkhorn Diversions (Figure 3)
- Sankey Diversion (Figure 4)
- Prichard Diversion (Figure 5)

The Sankey/Elkhorn Diversions alternative is the Proposed Project as identified by the NMWC.

Alternative 1 - No Action/No-Project Alternative

The No Action/No-Project Alternative is analyzed to provide a comparative evaluation as required by NEPA and CEQA. Under the No Action/No-Project Alternative, the following would occur:

- The five pumping plants (two along the Natomas Cross Canal and three along the Sacramento River) would remain in operation;
- The intakes associated with these pumping plants would continue to remain unscreened;
- The existing Verona Dam and diesel pumps would continue to provide water to the two pumping plants along the Natomas Cross Canal during periods of low flow; and
- No modifications would occur to the existing distribution system.

Proposed Improvements Common to All Action Alternatives

The following features are common to Alternatives 2, 3, and 4. Descriptions of features unique to the alternatives are set forth in the following alternative descriptions. All action alternatives would maintain the existing NMWC diversion capacity of 630 cfs, and include the following improvements to NMWC facilities:

- Decommissioning and removal of the existing Verona Diversion Dam and Lift Pumps.
- Removing the five pumping plants (two along the Natomas Cross Canal and three along the Sacramento River),
- Constructing one, or two new diversion facilities with fish screens,
- Modifications to the distribution system, including re-grading of existing canals, the construction of a new highline canal, and modifications to drainage canals to redistribute flows from the new diversion locations.
- Additional capacity for the internal re-lift pumps at RD 1000 Pumping Plant No. 3 in place of the removed Riverside Pumping Plant;
- Re-grading the Riverside Main highline canal from RD 1000 Pumping Plant No. 3 to the existing Riverside Pumping Plant;
- Upgrading of two control structures, the County Line Check and Lift Pump and the Elkhorn Check and Lift Pumps;
- Re-grading the North Drainage Canal from the V drain to Highway 99 in order to improve conveyance;
- Re-grading the Elkhorn Main Highline canal between the existing Prichard Pumping Plant and the existing Elkhorn Pumping Plant; and
- Additional modifications to the distribution system based on which diversion facilities are constructed.

Alternative 2 - Proposed Action / Proposed Project (Preferred Alternative)– Sankey/Elkhorn Diversion

The Proposed Project, Alternative 2 - Sankey/Elkhorn Diversion, would consist of constructing two new diversions with fish screens on the Sacramento River – one near Sankey Road, at a location to be determined during design between the confluence of the Natomas Cross Canal and

the Sacramento River (just downstream of the existing marina at Verona Landing) and approximately one mile south of the Natomas Cross Canal, and a second between Elkhorn and Elverta roads adjacent to the existing Elkhorn Pumping Plant (see Figure 3). The final location of the Sankey Diversion will be determined during final design and in consultation with the Sacramento Area Flood Control Agency (SAFCA) with regards to the location of the potential future levee setback project proposed by SAFCA. Other changes to the distribution system would include:

- Construction of a new highline canal between the proposed Sankey Diversion along the landside of the Natomas Cross Canal south levee to the existing Northern Pumping Plant; and
- Relocation and extension of the existing Vestal Drain adjacent to the new highline canal between RD 1000's Pumping Plant No. 4 and the new Sankey Diversion site.

Implementation of Alternative 2 would disturb approximately 130 acres, owned by both public and private entities.

Alternative 3 - Sankey Diversion

Alternative 3, the Sankey Diversion, consists of constructing one new diversion with a fish screen on the Sacramento River near Sankey Road, in the area between the existing marina at the Verona Landing and approximately one mile south of the Natomas Cross Canal (see Figure 4). Other changes to the distribution system under this alternative would include:

- Construction of a new highline canal from the proposed Sankey Diversion to the existing Northern Pumping Plant;
- Relocation and extension of the existing Vestal Drain adjacent to the new highline canal between RD 1000's Pumping Plant No. 4 and the proposed Sankey Diversion;
- Construction of a new highline canal from the proposed Sankey Diversion, south along the Garden Highway, to the existing Prichard Pumping Plant; and
- Enlargement of culverts for three road crossings of the North Drainage Canal, between the RD 1000's Pumping Plant No. 2 and the intersection with the East Drainage Canal.

Implementation of Alternative 3 would disturb approximately 145 acres, owned by both public and private entities.

Alternative 4 - Prichard Diversion

Alternative 4, the Prichard Diversion, would consist of constructing one new diversion with fish screens adjacent to the existing Prichard Pumping Plant (see Figure 5). Other changes to the distribution system for this alternative would include:

- Construction of a new highline canal from the proposed Prichard Pumping Plant to the existing Northern Pumping Plant; and

- Enlargement of culverts for three (3) road crossings of the North Drainage Canal, between the RD 1000's Pumping Plant No. 2 and the intersection with the East Drainage Canal.

Implementation of Alternative 4 would disturb approximately 139 acres, owned by both public and private entities.

POTENTIAL AREAS OF ENVIRONMENTAL IMPACT

An initial evaluation of the proposed American Basin Fish Screen and Habitat Improvement project by USBR and CDFG indicates that the proposed action and alternatives have the potential to result in significant adverse effects on the environment for the following issue areas:

- Aesthetics/Visual Quality
- Air Quality
- Biological Resources (Terrestrial and Aquatic Biology)
- Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Transportation and Circulation
- Environmental Justice
- Indian Trust Assets
- Cumulative Impacts
- Construction Effects

The environmental evaluation to be reported in the EIS/EIR will focus upon the impacts associated with these areas.

Appendix C
Notice of Intent

4310-MN-P

DEPARTMENT OF THE INTERIOR

Bureau of Reclamation

American Basin Fish Screen and Habitat Improvement Project, Sacramento River, California.

AGENCY: Bureau of Reclamation, Interior.

ACTION: Notice of Intent to prepare an Environmental Impact Statement / Environmental Impact Report and notice of scoping meeting.

SUMMARY: Pursuant to the National Environmental Policy Act (NEPA) of 1969 as amended, the Bureau of Reclamation (Reclamation) proposes to participate in a joint Environmental Impact Statement/ Environmental Impact Report (EIS/EIR) on the American Basin Fish Screen and Habitat Improvement Project (ABFS). The ABFS is being proposed by the Natomas Mutual Water Company (NMWC), a private mutual water company. The California Department of Fish and Game (CDFG) will be the lead agency under the California Environmental Quality Act (CEQA). The purpose of the ABFS is to improve passage conditions for migratory fish species in segments of the lower Sacramento River and Natomas Cross Canal adjacent to the American Basin, to improve aquatic and riparian habitat conditions in the project area, and to prevent entrainment of resident and migratory fish species in unscreened water diversions.

- **DATES:** A public scoping meeting will be held on November 20, 2003, between 6:30-8:30 p.m. in Sacramento, California.

Written comments on the project scope should be sent to the ABFS at the address below by December 4, 2003.

- **ADDRESSES:** The public scoping meeting will be held at the Residence Inn by Marriott, located in the South Natomas area of Sacramento at 2410 West El Camino Avenue.

Written comments on the project scope should be sent to the American Basin Fish Screen and Habitat Improvement Project, c/o Stephen Sullivan, Mead & Hunt, Inc., 3327 Longview Drive, Suite 100, North Highlands, CA 95660.

FOR FURTHER INFORMATION CONTACT: John Robles, Environmental Specialist with the Bureau of Reclamation at (916) 978-5050 or James Navicky, Environmental Scientist with California Department of Fish and Game at (916) 358-2030.

SUPPLEMENTARY INFORMATION: NMWC is a private mutual water company subject to local land use controls, including those of Sacramento and Sutter counties and the City of Sacramento. The service area of the NMWC includes the entire Natomas Basin, and NMWC controls surface water rights for over 280 landowners within the 55,000-acre Natomas Basin. NMWC diverts water from the Sacramento River (generally between River Mile [RM)] 79 and RM 61) and the Natomas Cross Canal to provide irrigation water for agricultural uses and habitat preservation.

NMWC currently maintains five pumping plants along the Sacramento River and the Natomas Cross Canal. These pumping plants divert surface water from the Sacramento River and Natomas Cross Canal into the NMWC service area. The five pumping plants

maintain a total maximum water diversion capacity of 630 cubic feet per second (cfs). There are also several local landowners within the Natomas Basin that are diverting irrigation water from the Sacramento River into the Natomas Basin through small privately owned pumps.

Drainage and flood control for the Natomas Basin is provided by Reclamation District 1000 (RD 1000), a public agency that has a coinciding service area with the NMWC and several joint use facilities.

Irrigation water is distributed primarily throughout the service area using NMWC's system of highline canals. NMWC also uses the RD 1000 drainage canal system to distribute water within the service area. Sacramento River water is pumped into the drainage canal system to be commingled with tailwater. This water is then re-lifted into the highline canal system or delivered directly into the fields.

The ABFS is necessary to avoid and / or minimize potentially adverse effects to at-risk fish species, including listed and proposed species, that inhabit or otherwise use these watercourses during various life stages, and to ensure the reliability of NMWC's water diversion and distribution facilities so that water supplies for agricultural use, habitat preservation, and habitat maintenance, including winter flooded waterfowl habitat, will continue. The habitat created through the operation of NMWC irrigation facilities provides habitat for at-risk species such as the state and federally-listed giant garter snake and the state-listed Swainson's hawk, as well as other species. Seasonal flooding of rice fields for rice straw decomposition provides wetland habitat for various local and migratory waterfowl.

The ABFS has been developed to address concerns regarding the health of local fish species. At various times of the year and various life stages, the lower Sacramento River and Natomas Cross Canal are inhabited by numerous fish species, including such state and federally-listed species as the winter-run chinook salmon, spring-run chinook salmon, Central Valley steelhead, Sacramento splittail, delta smelt and other at-risk species. These fish species, particularly anadromous salmonids (those fish that live as adults in salt water and spawn in fresh water) use the Sacramento River and Natomas Cross Canal as part of their migration corridor for upstream migration of spawning adults and downstream migration of rearing juveniles. Many of the fish species of concern that use these rivers have declined in population during the last few decades as a result of various stress factors.

The ABFS would maintain the existing NMWC diversion capacity of 630 cfs, and include the following improvements to NMWC facilities under all action alternatives:

- Decommissioning and removal of the existing Verona Diversion Dam and lift pumps;
- Removing the five pumping plants (two along the Natomas Cross Canal and three along the Sacramento River) and several small diversions operated by local landowners;
- Constructing one, or two new diversion facilities with fish screens;
- Modifications to the distribution system, including re-grading of existing canals and drains, the construction of new irrigation canals and drains, and modifications to drainage canals to redistribute flows from the new diversion locations;
- Additional capacity for the internal re-lift pumps at RD 1000 Pumping Plant No. 3 in

place of the removed Riverside Pumping Plant;

- Re-grading the Riverside Main Highline Canal from RD 1000 Pumping Plant No. 3 to the existing Riverside Pumping Plant;
- Upgrading of two control structures, the County Line Check and Lift Pump and the Elkhorn Check and Lift Pumps;
- Re-grading the North Drainage Canal from the V drain to Highway 99 in order to improve conveyance;
- Re-grading the Elkhorn Main Highline Canal between the existing Prichard Pumping Plant and the existing Elkhorn Pumping Plant; and,
- Additional modifications to the distribution system based on which diversion facilities are constructed.

The EIS/EIR will consider a range of alternatives including the no-action alternative.

Scoping is an early and open process designed to determine the issues and alternatives to be addressed in the EIS/EIR. The following are items to be addressed that have been identified to date: Aesthetics/Visual Quality; Agricultural Resources; Air Quality; Biological Resources (Terrestrial and Aquatic Biology); Cultural Resources; Geology and Soils; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use; Noise; Transportation and Circulation; Environmental Justice; Indian Trust Resources; Cumulative Impacts; and Construction Effects.

The draft EIS/EIR will focus on the impacts and benefits of implementing the various alternatives. It will contain an analysis of the physical, biological, social, and economic impacts arising from the alternatives. In addition, it will address the cumulative impacts

of implementation of the alternatives in conjunction with other past, present, and reasonably foreseeable actions.

Our practice is to make comments, including names and home addresses of respondents, available for public review. Individual respondents may request that we withhold their home address from public disclosure, which we will honor to the extent allowable by law. There also may be circumstances in which we would withhold a respondent's identity from public disclosure, as allowable by law. If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your comment. We will make all submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public disclosure in their entirety.

Dated:

Signed: /s/ Frank Michny
Frank Michny
Regional Environmental Officer

Appendix D
Cultural Resources Correspondence

CENTRAL VALLEY ENV 3.00

STATE OF CALIFORNIA – THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@ohp.parks.ca.gov
www.ohp.parks.ca.gov

EA
1/6

December 22, 2003

REPLY TO: BUR031023A

Frank Michny, Regional Environmental Officer
Bureau of Reclamation
Mid-Pacific Regional Office
2800 Cottage Way
SACRAMENTO CA 95825-1898

Re: American Basin Fish Screen and Habitat Improvement Project, Sacramento and Sutter Counties.

Dear Mr. Michny:

Thank you for submitting to our office your October 21, 2003 letter in response to my letter of November 19, 2003 regarding the proposed American River Fish Screen and Habitat Improvement project along the east side of the Sacramento River in Sacramento County. The Bureau of Reclamation (BUR), through CALFED is assisting the Natomas Mutual Water Company in upgrading their water management facilities in the North Natomas area. The proposed project would maintain a reliable water supply for agricultural uses and habitat preservation while improving aquatic and riparian habitat along the Sacramento River and Natomas Cross Canal by improving the ability of resident and migratory fish to navigate these waterways without entrainment by unscreened water diversions. The Natomas Cross canal is a contributing property to the Reclamation District (RD) 1000 Historic District, a property determined, by consensus, to be eligible for inclusion on the National Register of Historic Places (NRHP). The proposed project would involve:

- Consolidation of five existing water pumping plants on the Sacramento River and Natomas Cross Canal into either one or two diversion facilities.
- The addition of state-of-the-art fish screens to the new diversion(s).
- The elimination of a seasonal dam and diesel lift pumps at the mouth of the Natomas Cross Canal.
- The modification of the existing system of distribution canals to maintain the current level of irrigation services.

BUR is considering three (3) alternatives (1C, 2C, and 3) in addition to a No Project Alternative for the proposed project. Alternative 2C (The Sankey/Elkhorn Diversion) is the Preferred Alternative.

In my November 19, 2003 letter, I requested that BUR forward a map delineating and identifying the project Area of Potential Effects (APE) as defined in 36 CFR 800.16(d). Documentation forwarded by BUR has addressed this issue.

BUR is seeking my comments on its proposed undertaking in accordance with 36 CFR 800, regulations implementing Section 106 of the National Historic Preservation Act. A review of the submitted documentation leads me to make the following comments regarding the proposed project.

- I concur with BUR's determination that archeological site CA-SAC-485-H, though modified, has the potential to be eligible for inclusion on the National Register of Historic Places (NRHP) under Criterion D as defined in 36 CFR 60.4. The site has yielded materials that may be important in the study of history in the Sacramento area.

- BUR has decided to avoid any effects to CA-SAC-485-H that may result from proposed undertaking. I endorse this decision.

- I concur with BUR's determination that archeological sites CA-SAC-487-H, CA-SAC-488-H, and CA-SAC-489-H are not eligible for inclusion on the NRHP under any of the criteria established by 36 CFR 60.4. These properties have not yielded information that is important to the study of history or prehistory.

- Although the Elkhorn Pumping Plant and the Riverside Pumping Plant have not been formally evaluated for this project, I concur with BUR that the proposed modifications to their respective platforms would not adversely effect any characteristics that may qualify either structure for inclusion on the NRHP.

- I concur with BUR's determination that the Prichard Pumping Plant is ineligible for inclusion on the NRHP under any of the criteria established by 36 CFR 60.4. The property has no strong associations with significant historical events or persons and is not an example of outstanding architectural or engineering design or function.

- I concur with BUR's finding that the proposed undertaking, as described, will have no adverse effect on properties determined eligible for inclusion in the NRHP or on properties considered for the purposes of this undertaking to be either eligible or prospectively eligible for inclusion in the NRHP. The proposed undertaking will not significantly alter or change those characteristics that qualify RD 1000 for inclusion in the NRHP.

Thank you again for seeking my comments on your project. If you have any questions, please contact staff historian Clarence Caesar by phone at (916) 653-8902, or by e-mail at ccaes@ohp.parks.ca.gov.

Sincerely,

Dr. Knox Mellon
State Historic Preservation Officer

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
Fax (916) 657-5390
Web Site www.nahc.ca.gov

November 5, 2001

Ms. Eleanor Derr
Cultural Resources Unlimited
2614 Aramon Drive
Rancho Cordova, California 95670

RE: Proposed American Basin Fish Screen and Habitat Improvement project, Sutter County & Sacramento County.
Sent by Fax: (916) 363-5413
Pages Sent: 3

Dear Ms. Derr:

A record search of the sacred lands file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend other with specific knowledge. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received

If you receive notification of change of addresses and phone numbers from any these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4038.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

BUREAU OF RECLAMATION

CENTRAL VALLEY

ENV 3.00

OFFICIAL FILE COPY		
DATE	SUBNAME	CODE
21 Oct 03	LND	153
10/21/03	PRE	153

OCT 21 2003

MP-153
LND-1.10

Dr. Knox Mellon
State Historic Preservation Officer
Office of Historic Preservation
P.O. Box 942896
Sacramento, California 94296-0001

Subject: American Basin Fish Screen and Habitat Improvement, Sacramento County, California
Compliance with Sction106 of the National Historic Preservation Act

Dear Dr. Mellon:

The Bureau of Reclamation, through CALFED, is assisting the Natomas Mutual Water Company (NMWC) in upgrading their water management facilities in the North Natomas area along the east side of the Sacramento River. The proposed project will maintain a reliable water supply for agricultural uses and habitat preservation while improving aquatic and riparian habitat along the Sacramento River and Natomas Cross Canal by improving the ability of resident and migratory fish to navigate these waterways without entrainment by unscreened water diversions. Reclamation is the lead Federal agency for this undertaking. The proposed project includes:

- Consolidation of the five existing water pumping plants on the Sacramento River and Natomas Cross Canal into either one or two diversion facilities.
- The addition of state-of-the-art fish screens to the new diversion(s).
- The elimination of a seasonal dam and diesel lift pumps at the mouth of the Natomas Cross Canal.
- The modification of the existing system of distribution canals to maintain the current level of irrigation services.

Currently, the NMWC operates five pumps on the Sacramento River and tributaries, along with a dam at the mouth of the Natomas Cross Canal and diesel-powered lift pumps that draw water from the Sacramento River into the Natomas Cross Canal.

Classification	ENV 3.00
Project	CVP
Control No.	3012666
	53356

The NMWC is now proposing a project to consolidate river diversion points, place fish screens on the consolidated river diversions, and remove the dam at the Natomas Cross Canal. Three feasible project design alternatives have been identified in addition to the No Project Alternative: Sankey/Elkhorn Diversion, Sankey Diversion, and Prichard Diversion. All alternatives will require the abandonment and removal of the five existing diversion facilities, construction of one or two diversion facilities, abandonment and removal of the Verona Diversion Dam and pumps, additional capacity for internal pumps at Reclamation District 1000 (RD1000) Pumping Plant No. 3 to replace capacity from the removed Riverside Pumping Plant, re-grading the Riverside Main highline canal from RD1000 Pumping Plant No.3 to the existing Riverside Pumping Plant, re-grading of the highline canal between the Elkhorn and Prichard Pumping Plants, and upgrading of two control structures; the County Line Check and Lift Pump and Elkhorn Check and Lift Pump. More detailed descriptions and maps of the alternatives are provided in the enclosed report.

The Sankey/Elkhorn Diversion is the preferred alternative. This alternative will require construction of two diversions on the Sacramento River, one near Sankey Road, approximately one-third of a mile south of the Natomas Cross Canal, and one between Elkhorn and Elverta roads adjacent to the existing Elkhorn Pumping Plant. A new highline canal will be constructed between the proposed Sankey Diversion along the landside of the Natomas Cross Canal south levee to the existing Northern Pumping Plant, and the exiting Vestal Drain will be relocated and extended between RD1000 Pumping Plant No. 4 and the new Sankey Diversion site.

Enclosed is a historic properties inventory and evaluation report for your review and comment. The consultant sent letters of inquiry to those individuals identified by the Native American Heritage Commission. One response (enclosed) was received and repeated attempts to arrange for a requested field visit have not received any response. Based on this study and the cited studies, Reclamation has concluded that the proposed project will have no adverse effect on historic properties.

Cultural resources in the area of potential effect include one archeological site (CA-Sac-485-H), the Prichard, Elkhorn and Riverside pump houses of the NMWC and Reclamation District 1000. RD1000, a Rural Historic Landscape District, is significant at the state level for the period from 1911-1939. The Natomas Cross Canal is part of RD 1000.

The Elkhorn and Riverside pumping plants were constructed in 1921 and 1914, respectively, as part of the NMWC. The NMWC, while more than 50 years old, has no national or state historical significance. It is one of the many California irrigation companies that were constructed in the early 1900s. The Elkhorn Pumping Plant has been completely renovated and the Riverside Pumping Plant is in good repair. However, the pumps at both plants have been upgraded and are not associated with the original design. The Prichard Pumping Plant is more recent in age and is covered with corrugated galvanized sheet metal; has no historic significance. CA-Sac-485-H, while never formally evaluated, appears to Reclamation, to be significant under criterion D.

The proposed project will modify parts of the NMWC, but the function of the water company will remain unchanged. The NMWC, like other similar water companies, is dynamic, adapting to new standards and regulations as needed. This dynamic process has been ongoing since NMWC was initially constructed. While the pumps will be removed from the Elkhorn and Riverside pumping plants, the pump houses will remain. The Prichard Pumping Plant will be removed. It does not have any historic significance.

The changes to the Natomas Cross Canal, part of RD1000, will allow the function of the canal and levee to remain unchanged. HAER documentation for this feature has been completed as part of an earlier project unrelated to the present project, and further documentation is unwarranted.

The surface of the archeological site CA-Sac-485-H has been significantly modified, but undisturbed subsurface deposits may be present. The site may be an important prehistoric settlement. Impacts to this site will be avoided. Reclamation concurs with this approach and, if followed, it should result in no adverse effect to the site.

We request your concurrence with our determination that the proposed undertaking will have no adverse effect on historic properties. Our contact for cultural resource compliance is Dr. James West, Regional Archeologist, 916-978-5041 (TDD 916-978-5608) or e-mail gwest@mp.usbr.gov.

Sincerely,

/s/ Bob Eckart

for Frank Michny
Regional Environmental Officer

Enclosures: 2 (1 enclosure attached, the other maintained in MP-150)

WBR:JWest:emgrey:21 Oct 03:978-5041
I:\152\GJW\CALFED\American Basin KNOX Edits_10-16-03.doc

CULTURAL RESOURCES UNLIMITED
2614 Aramon Drive
Rancho Cordova, CA 95670
(916) 363-8774
Fax: (916) 363-5413

October 30, 2001

Native American Heritage Commission
Ms. Debbie Pilas-Treadway
915 Capitol Mall, Room 364
Sacramento, CA 95814

RE: Natomas Mutual Water Company: American Basin Fish Screen and Habitat Improvement Project

Dear Ms Treadway: :

This letter is to inform you of the above-referenced project, as shown on the U.S.G.S. Taylor Monument, and Verona 7.5' topo-graphic maps included (Township and Range are marked on each). I am sending three maps, plus a project map so you can better understand these separate locations. The project will consist of several improvements and additions to canals for purposes of providing water primarily for irrigation. Several existing pumps are placed along the Sacramento River. Some will be upgraded, primarily with new fish screens. Some will be consolidated in this process.

Most of these areas have already been disturbed with the existing constructions, however, as this riverside area is potentially significant, it is possible there may be cultural sites that are as yet unknown and unrecorded.

This area has also suffered disturbance in the historic period, when agricultural activities began. Prior to reclamation, most of the areas east of the river were covered with marshes and known as the American Basin.

If you have any comments or questions, please call or FAX me at the above numbers at your earliest convenience. If I do not hear from you within 30 days, I will assume you have no further concerns. Thank you very much for your assistance in this matter.

Sincerely,

Eleanor Derr

Eleanor H. Derr, Archaeologist

Maps attached

cc: Ms Rose Enos, Auburn; Mr. David Keyser, United Auburn Indian Community; Mr. Joe Marine, Sacramento; Mr. Jeff Murray, Shingle Springs; Mr. Sam Starkey, Auburn; Mr. John Suehead, Newcastle

enclosure 2 of 2

STATE OF CALIFORNIA

Gray Davis, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
Fax (916) 657-5390
Web Site www.nahc.ca.gov

November 5, 2001

Ms. Eleanor Derr
Cultural Resources Unlimited
2614 Aramon Drive
Rancho Cordova, California 95670

RE: Proposed American Basin Fish Screen and Habitat Improvement project, Sutter County & Sacramento County.
Sent by Fax: (916) 363-5413
Pages Sent: 3

Dear Ms. Derr:

A record search of the sacred lands file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend other with specific knowledge. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received

If you receive notification of change of addresses and phone numbers from any these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4038.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

December 7, 2001

Eleanor Derr
Cultural Resources Unlimited
2614 Aramon Drive
Rancho Cordova, CA 95670

Re: Natomas Mutual Water Company: American Basin Fish Screen , etc.

Dear Ms. Derr:

The Tribal Historic Preservation Committee has no specific information regarding sacred sites in the above mentioned project area. We are unfamiliar with the mound that is referred would like to schedule a walk through of the project area.

Please contact us with scheduling information as soon as possible.

Thank you.

Sincerely,

John O. Suehead

John O. Suehead, Committee Chairperson
Tribal Historic Preservation Committee

Tribal Office • 661 Newcastle Road, Suite 1, Newcastle, CA 95658 • (916) 663-3720 FAX (916) 663-3727

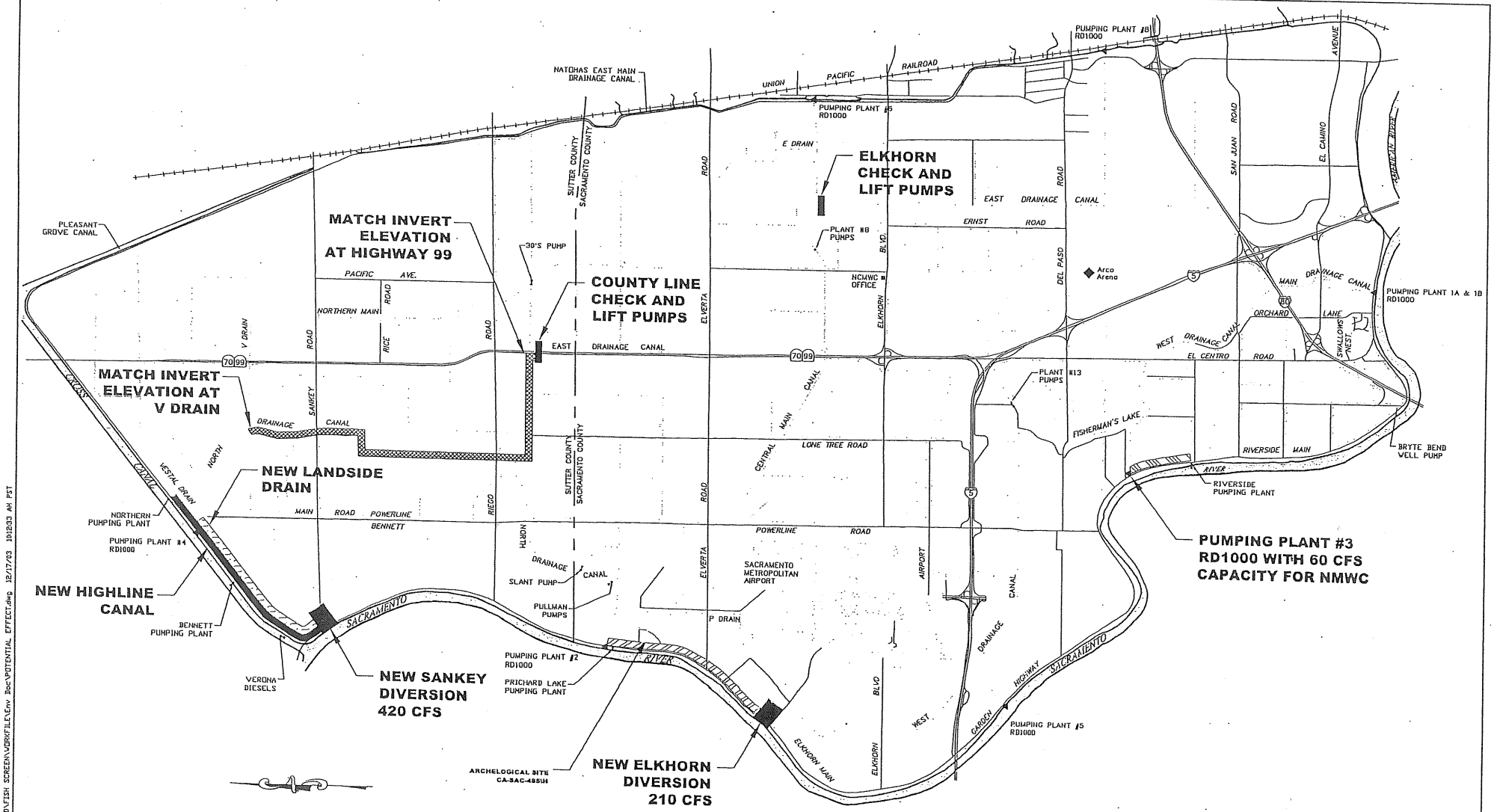
From: Jim West
To: IBR2smtp:"ccaes@ohp.parks.ca.gov"
Date: 12/22/03 9:55AM
Subject: Fwd: FW: Area of Potential Effect BUR031023A

Clarence, As requested attaced is the file with the APE for the American Basin Fish Screen and Habitat Impovement Project. The one archeological site (CA Sac 485\H abuts the APE. According to their archeologist, who has been there it and surveyed and re-recorded the site, their proposed projct should not affect that site. I will be sending a follow-up hard copy but with this .pdf file is in a more flexiable format.

Saw you on TV a while ago on KVIE.

Best for the Holidays, Jim

G. James West
Regional Archeologist
Bureau of Reclamation- Mid Pacific Region
2800 Cottage Way
Sacramento, CA 95825
(916) 978-5041
FAX (916) 978-5055



MEAD & HUNT — ENGINEERS ARCHITECTS SCIENTISTS PLANNERS
3337 Lexington Drive North Highlands, California 95660
Phone: (916) 971-3961 Fax: (916) 971-4518

12-10-2003 SUBMITTED | APPROVED

NATOMAS MUTUAL WATER COMPANY

AMERICAN BASIN FISH SCREEN AND HABITAT IMPROVEMENT PROJECT
AREA OF POTENTIAL EFFECT

SCALE OF ORIGINAL: NO SCALE

G:\J-M\SAC\NBS01\Tech\CADD\FISH SCREEN\WORKFILES\Env Doc\POTENTIAL EFFECT.dwg 12/17/03 10:20:33 AM PST

STATE OF CALIFORNIA – THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@ohp.parks.ca.gov
www.ohp.parks.ca.gov

November 19, 2003

REPLY TO: BUR031023A

Frank Michny, Regional Environmental Officer
Bureau of Reclamation
Mid-Pacific Regional Office
2800 Cottage Way
SACRAMENTO CA 95825-1898

Re: American Basin Fish Screen and Habitat Improvement Project, Sacramento and Sutter Counties.

Dear Mr. Michny:

Thank you for submitting to our office your October 21, 2003 letter and supporting documentation regarding the proposed American River Fish Screen and Habitat Improvement project along the east side of the Sacramento River in Sacramento County. The Bureau of Reclamation (BUR), through CALFED is assisting the Natomas Mutual Water Company in upgrading their water management facilities in the North Natomas area. The proposed project would maintain a reliable water supply for agricultural uses and habitat preservation while improving aquatic and riparian habitat along the Sacramento River and Natomas Cross Canal by improving the ability of resident and migratory fish to navigate these waterways without entrainment by unscreened water diversions. The proposed project would involve:

- Consolidation of five existing water pumping plants on the Sacramento River and Natomas Cross Canal into either one or two diversion facilities.
- The addition of state-of-the-art fish screens to the new diversion(s).
- The elimination of a seasonal dam and diesel lift pumps at the mouth of the Natomas Cross Canal.
- The modification of the existing system of distribution canals to maintain the current level of irrigation services.

BUR is considering three (3) alternatives (1C, 2C, and 3) in addition to a No Project Alternative for the proposed project. Alternative 2C (The Sankey/Elkhorn Diversion) is the Preferred Alternative.

BUR is seeking my comments on its proposed project in accordance with 36 CFR 800, regulations implementing Section 106 of the National Historic Preservation Act. My review of

the submitted documentation leads me to make the following comments regarding the proposed project:

- No Area of Potential Effects (APE) for this project has been delineated or depicted in the project documentation received thus far. In accordance with 36 CFR 800.4(a) BUR is responsible for determining and documenting the project APE, as defined in 36 CFR 800.16(d).

- BUR's level of effort regarding the identification of known cultural resources within the potential project area appears adequate to date. However, with no delineated APE, it is difficult to discern the potential effects the proposed project will have on properties that have been identified in previous studies cited in your documentation.

Please provide me, at your earliest possible convenience, any documentation that addresses the above comments. I will forward my comments regarding the proposed project and its impacts on potential historic properties once I have received your documentation.

Thank you again for seeking my comments on your project. If you have any questions, please contact staff historian Clarence Caesar by phone at (916) 653-8902, or by e-mail at ccaes@ohp.parks.ca.gov.

Sincerely,

Dr. Knox Mellon
State Historic Preservation Officer

Appendix E
Fish and Wildlife Coordination Act Report

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

In reply refer to:
CRC-HC-Natomas

FEB 1 2008

Memorandum

To: Regional Director, Bureau of Reclamation, Mid-Pacific Region
Sacramento, California

From: Acting Field Supervisor, Sacramento Fish and Wildlife Office
Sacramento, California

Subject: Fish and Wildlife Coordination Act Report for the Natomas Mutual Water Company American Basin Fish Screen and Habitat Improvement Project

This memorandum transmits the U.S. Fish and Wildlife Service's (Service) draft Fish and Wildlife Coordination Act (FWCA) report, as provided for in Section 2(b) of the FWCA (48 stat. 401, as amended), for the Natomas Mutual Water Company American Basin Fish Screen and Habitat Improvement project.

The report assesses potential project effects on fish and wildlife resources and provides our preliminary recommendations to avoid, minimize, rectify or compensate for potential adverse effects. The report is primarily based on the Service's review of: 1) the April 2005, Administrative Draft Environmental Impact Statement /Environmental Impact Report; 2) electronic mail correspondences from Bradley Hubbard (Bureau of Reclamation) and Craig Steven (Stevens Consulting) which describe the phasing of the proposed project, impacted habitat acres and provides clarification of specific elements of the proposed action; and 3) other information available to the Service. This report has also been submitted to California Department of Fish and Game and National Marine Fisheries Service for review and comment. Details of the project's effects on federally listed species, pursuant to section 7 of the Endangered Species Act of 1973, as amended, are being addressed separately.

Any questions or comments regarding this report should be directed to Mark Littlefield or Stephanie Rickabaugh at (916) 414-6600.

Attachment

U.S. Department of the Interior
Fish and Wildlife Service

Draft
Fish and Wildlife Coordination Act Report

Natomas Mutual Water Company
American Basin Fish Screen and Habitat Improvement Project, Sacramento and Sutter Counties, California

Prepared By
U.S. Fish and Wildlife Service
Sacramento Fish and Wildlife Office
Sacramento, California

Prepared For
U.S. Bureau of Reclamation
Mid-Pacific Region
Sacramento, California

January 2008

EXECUTIVE SUMMARY

This document constitutes the U.S. Fish and Wildlife Service's (Service) draft Fish and Wildlife Coordination Act (FWCA) report to the U.S. Bureau of Reclamation (Reclamation) for the Natomas Mutual Water Company's (NMWC) American Basin Fish Screen and Habitat Improvement Project (Project). The FWCA provides that Federal agencies consult with the Service before undertaking or approving projects carried out under Federal permits and licenses that control or modify any bodies of water for any purpose, and that fish and wildlife resources receive equal consideration and be coordinated with other features of the project. This report addresses expected beneficial and adverse effects on fish and wildlife resources due to project alternatives, and provides recommendations for implementing the project. This report has been prepared in coordination with the California Department of Fish and Game (CDFG) and National Marine Fisheries Service (NMFS).

The purposes of this project are to improve passage conditions for anadromous fish species in segments of the lower Sacramento River and Natomas Cross Canal, improve aquatic and riparian habitat conditions in the project area, and prevent entrainment of resident and anadromous fish species through unscreened water diversions. As identified by the project proponent and Reclamation, the Proposed Action is the Sankey/Elkhorn Alternative (Phased). This alternative proposes to remove the five existing pumping plants and associated facilities and construct two new pumping plants with fish screens on the Sacramento River. Two other alternatives also propose to remove the five existing pumping plants and associated facilities; however, each of those alternatives propose to construct one consolidated pumping plant with a fish screen on the Sacramento River.

The Proposed Action, Alternative 1, and Alternative 2 would disturb about 130, 145, and 139 acres of public and private lands, respectively.

Section 3406(b)(21) of the Central Valley Project Improvement Act (CVPIA); Public Law 102-575 authorized and directed the Department of the Interior to work with the State of California in efforts to avoid losses of juvenile anadromous fish resulting from unscreened diversions on the Sacramento River and other Central Valley streams. The Ecosystem Restoration Program (ERP) is a part of the CALFED Bay-Delta Program. Goal 3 as identified in the ERP Strategic Plan for Ecosystem Restoration and the ERP Draft Stage 1 Implementation Plan states that "…the goal is to maintain and/or enhance populations of selected species for sustainable commercial and recreational harvest consistent with the other ERP Strategic Goals" (CALFED 2000). The implementation of this project would work toward the CALFED goal of protecting fish from entrainment.

Direct impacts associated with the structural/physical as well as the operational components of the proposed project are addressed in this report and include: 1) the footprint of the new pumping facilities; 2) footprint of the new Sankey Canal and Drain; 3) relocation and extension of the Vestal Drain; 4) relocation and regrading of a section of the Elkhorn Canal; 5) relocation and regrading of a section of the Riverside Canal; 6) the maintenance and operation of the

7 miles of new canals created by the Project; 7) removal of the Verona Diversion Dam and pumps; 8) removal of five NMWC pumping plants and the Bolen Ranch pumping plant; 9) addition of giant garter snake refugia in the Sankey and Riverside canals; and 10) staging areas. Existing habitats and cover-types that would be impacted by these activities are: shaded riverine aquatic (SRA) cover, riparian forest, oak woodland, riparian scrub, irrigation canal, open water/aquatic, agricultural land, and annual grassland.

Information pertaining to listed species is general at this time. Any recommendations concerning listed species, while intended to help guide the formulation of avoidance, minimization, and conservation measures do not constitute formal consultation pursuant to section 7(a) of the Endangered Species Act, as amended (16 U.S.C. 1531 et seq.) (ESA). The ESA consultation on this project has not been initiated yet.

The recommendations contained in this report include measures for Reclamation to avoid, minimize, and compensate impacts to fish and wildlife resources resulting from the proposed project. The Service's recommendations are as follows:

1. Avoid impacts to fish and wildlife and their habitat by:
    a. Ensuring that existing rock piles and riprap at the Northern and Bennett facilities are left undisturbed as proposed in the project description;
    b. Developing a water quality management plan which includes pH monitoring in the Natomas Basin (Basin) for a period of 3 years post-project implementation and develop an adaptive management plan to address any negative water quality (pH 7.5 or greater) readings that occur within this period. The management plan should include provisions to maintain the existing Riverside facility for a period of 3 years, or until the pH monitoring has concluded;
    c. Conducting pre-construction field surveys during appropriate times of year by qualified biologists to identify and insure implementation of avoidance measures such as fencing and establishment of appropriate buffer areas to protect any sensitive plants, animals, and habitats at or near the project site;
    d. Limiting removal of instream cover and overhanging vegetation to the extent practicable along the Sacramento River;
    e. Protecting existing nests of raptors and other migratory birds until the young are fledged;

2. Minimize impacts to fish and wildlife and their habitat by:
    a. Reducing bank revetment at the proposed Sacramento River pumping plant locations to the minimum length needed for hydraulic performance and structural integrity of the fish screen;
    b. Limiting dredging to the extent possible;
    c. Placing fill material outside of important habitat areas, as identified by a qualified biologist;
    d. Limiting work within wetted channels;
    e. Using the least sensitive areas (such as existing disturbed areas or annual grasslands) for parking, construction activities, stockpiling, and staging areas and limit their sizes. Clearly mark and restore affected areas following construction. Restored areas should be

maintained and monitored for a period of 5 years, or until established for a period of 3 years without the need for human intervention;

f. Reseeding all disturbed areas with regional native plant species (i.e., Sacramento Valley) upon completion of project construction;
g. Conducting construction activities in emergent marsh and agricultural areas outside of the winter season when waterfowl are not present.

3. Compensate for unavoidable impacts by:
   a. Developing and implementing, in cooperation with the Service, NMFS, CDFG and NMWC, a compensatory mitigation plan for all aquatic and terrestrial habitats adversely affected by the project in accordance with the CALFED Multi-Species Conservation Strategy's (MSCS). The mitigation portion of the document should identify compensation areas, designate revegetation areas, list the species to be planted, include a table of existing and expected future habitat acreage, and include a time line for implementation. The monitoring portion of the document should list elements to be monitored that would indicate success or failure, for example, floristic composition and vegetative cover. The mitigation and monitoring plan should include remedial measures should successful revegetation not be achieved;
   b. Implementing compensatory mitigation measures prior to or concurrent with project construction;
   c. Compensating for unavoidable impacts to SRA cover and riparian forest in accordance with the CALFED MSCS. This compensation has not been developed as of the preparation of this document, but is anticipated to be completed in 2008;
   d. Removing riprap associated with the Prichard, Elkhorn, and Riverside facilities. These areas should be actively planted with a mix of native plant species;
   a. Meeting with the Service post-construction and evaluate project-related impacts and mitigation measures. Determine any remaining project mitigation needs, supplementing the mitigation plan, and implementing actions to fully compensate for project-related impacts to fish and wildlife resources.

4. Complete section 7 consultation with the Service and NMFS for federally listed species.

5. Consult with the CDFG for potential impacts to State listed threatened and endangered species.

6. Develop and implement, in cooperation with the Service, NMFS, CDFG, and NMWC, an evaluation and monitoring plan to assess the adequacy of the fish screen in meeting biological and engineering design criteria and monitor the screen for the period of time necessary to evaluate screen performance at a range of river flows and pumping rates.

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INTRODUCTION

This document constitutes the U. S. Fish and Wildlife Service's (Service) Fish and Wildlife Coordination Act (FWCA) report to U.S. Bureau of Reclamation (Reclamation) regarding the proposed project. This report has been prepared under the authority of, and in accordance with, section 2(b) of the FWCA (Public Law 85-624; 16 U.S.C. 661-667e) and is for inclusion in the Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the proposed project. The FWCA requires Federal agencies to: 1) coordinate with the Service before undertaking or approving projects (carried out under Federal permits and licenses) that control or modify any bodies of water for any purpose, and 2) that fish and wildlife resources receive equal consideration and be coordinated with other features of the projects. This report and its recommendations to avoid, minimize and compensate for impacts associated with the proposed action are based on site visits and numerous discussions with the project applicant.

The Natomas Mutual Water Company (NMWC) and Reclamation propose to improve passage conditions for anadromous fish species in segments of the lower Sacramento River and Natomas Cross Canal adjacent to the American Basin, improve aquatic and riparian habitat conditions in the project area and prevent entrainment of resident and anadromous fish species through unscreened water diversions.

The proposed project would be located in Sacramento and Sutter counties and would consist of two new water diversion facilities with fish screens on the Sacramento River. Construction activities would take place on and adjacent to the Sacramento River and on agricultural lands within the Basin north of Sacramento, California. One pumping plant would be located near Sankey Road and a second between Elkhorn and Elverta roads adjacent to the existing Elkhorn Pumping Plant. The pumping plants would reverse the flow of water within Elkhorn and Riverside canals. The final location of the Sankey Diversion would be determined during final design and in consultation with the Sacramento Area Flood Control Agency (SAFCA) which has proposed a setback levee project in this area. In addition to the new pumping facilities, changes to the distribution system would be needed and include construction of a new canal and relocation and extension of the existing Vestal Drain adjacent to the new canal between Reclamation District (RD) 1000's Pumping Plant # 4 and the new Sankey Diversion.

Details of project effects on federally listed species are being addressed in the associated Action Specific Implementation Plan (ASIP). The ASIP identifies, evaluates and discloses environmental impacts of the Proposed Action and alternatives; and provides the needed information for Reclamation, National Marine Fisheries Service (NMFS), the Service, and the California Department of Fish and Game (CDFG) to comply with the Endangered Species Act of 1973, as amended (ESA), the California Endangered Species Act, and the Natural Communities Conservation Act. The ESA consultation on the project has not been initiated yet.

Due to the nature of the project, both beneficial and adverse effects would occur to fish and wildlife resources and are assessed in this report. The Service did not conduct a habitat assessment using the Habitat Evaluation Procedures to quantify project impacts. The Service's analysis is based on biological and engineering information provided by the State and Federal lead agencies, site visits to the project area, review of project-related literature, personal

communications with recognized experts, and best professional judgment. Where mitigation measures have been recommended, the Service reviewed the Multi-Species Conservation Strategy's (MSCS) recommended ratios for the habitat types impacted by this Project and believes those ratios adequately represent the mitigation needs for habitats affected by the proposed project.

PROJECT ALTERNATIVES AND SETTING

The NMWC is located in northwestern Sacramento County and southern Sutter County in the Basin. The project area includes a portion of the lower Sacramento River and the Natomas Cross Canal where the NMWC's existing pumping plants are located. The project area is roughly bounded by the Sacramento River on the west, the Natomas Cross Canal on the north, the Natomas East Main Drainage Canal on the east, and the American River on the south (Figure 1). The NMWC service area includes the entire Basin, about 55,000 acres. The NMWC diverts water from the Sacramento River and Natomas Cross Canal to provide irrigation water for agricultural use. The predominant crops produced in the Basin are rice, corn, grain, tomatoes, and pasture land.

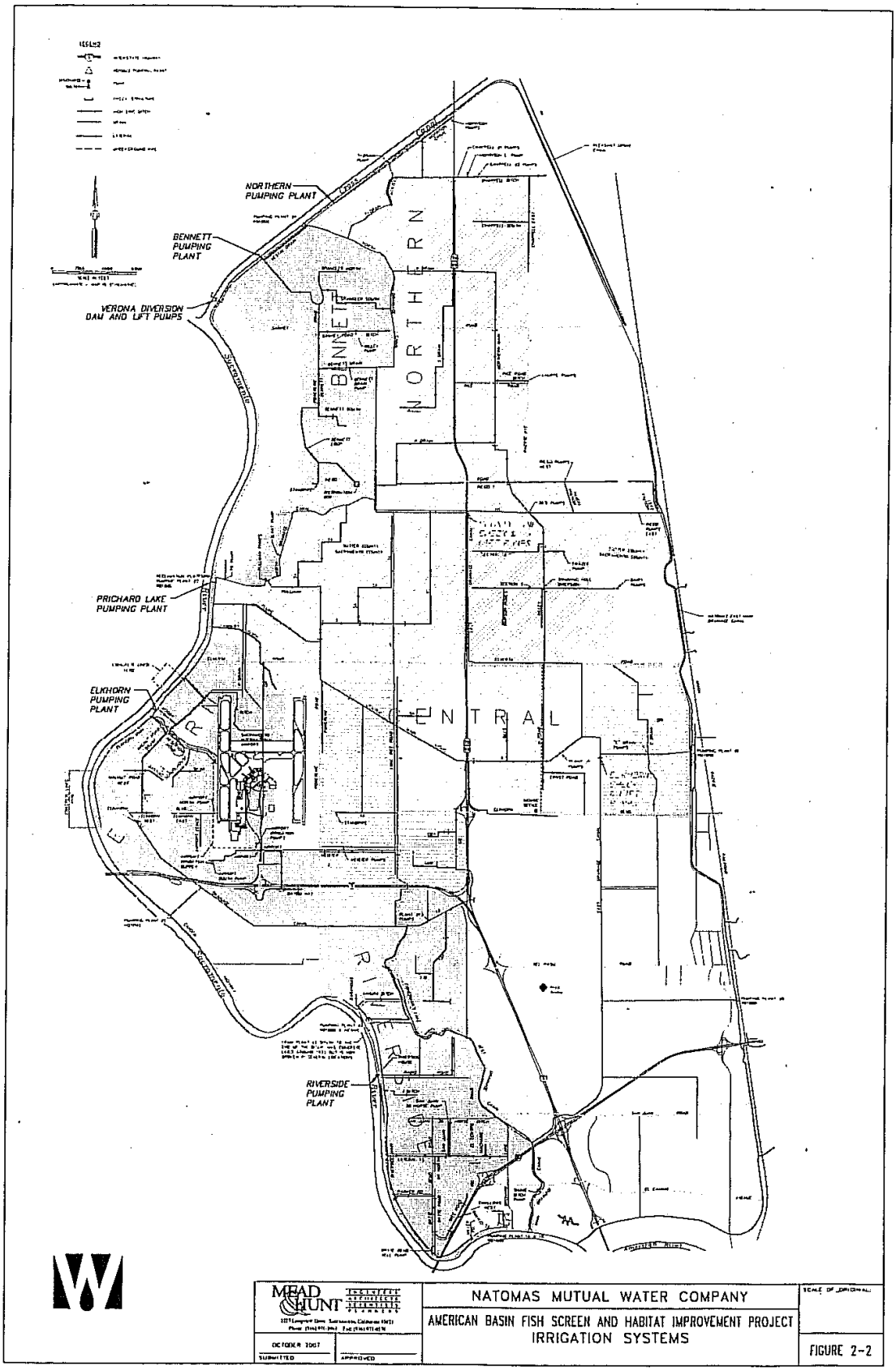
The NMWC operates and maintains five pumping plants along the Sacramento River and the Natomas Cross Canal. The five plants maintain a maximum diversion capacity of 630 cubic feet per second (cfs). Diverted water is distributed throughout the service area using a system of canals. NMWC also uses the RD 1000 drainage canal system to distribute water within the service area. The RD 1000 also provides drainage and flood protection for the Basin. NMWC divides its service area into five districts, which are linked and used to support each other. Each district has its own pumping facility, located on the Sacramento River or Natomas Cross Canal. These districts include the Northern and Bennett Systems on the Natomas Cross Canal and the Central, Elkhorn, and Riverside Systems on the Sacramento River.

The NMWC's Verona Diversion Dam and lift pumps are located in the Natomas Cross Canal, about 0.2 mile upstream from its confluence with the Sacramento River. The facility consists of three removable steel bulkheads and five diesel lift pumps. The bulkheads and pump motors are installed when low water levels in the Natomas Cross Canal create problems with the Bennett and Northern pumping plants. The facility pumps water from the Sacramento River into the Natomas Cross Canal, maintaining water levels sufficient to operate the Bennett and Northern facilities. The dam and pumps are operated on average three out of every 10 years for 2 to 4 months at a time.

Project Alternatives

Three action alternatives and a no action alternative were developed to meet the objectives of the Project, and are evaluated in the draft EIS/EIR. The three action alternatives include a total pumping capacity of 644 cfs, changes to the existing water distribution system, and abandoning and dismantling of existing pumping plants and their associated levee pipes. Three additional

Figure 1


NORTHERN PUMPING PLANT
BENNETT PUMPING PLANT
VERONA DIVERSION DAM AND LIFT PUMPS
PRICHARD LAKE PUMPING PLANT
ELKHORN PUMPING PLANT
RIVERSIDE PUMPING PLANT
NORTHERN
CENTRAL
MEAD & HUNT
NATOMAS MUTUAL WATER COMPANY
AMERICAN BASIN FISH SCREEN AND HABITAT IMPROVEMENT PROJECT
IRRIGATION SYSTEMS
FIGURE 2-2

alternatives were considered, but eliminated from further consideration due to their infeasibility (Reclamation and CDFG 2005a).

Phased Sankey/Elkhorn Diversion—Proposed Action

The Proposed Action (Phased Sankey/Elkhorn Diversion) consists of two new diversion facilities with fish screens on the Sacramento River constructed in three phases.

Phase I consists of constructing the new Sankey Diversion, equipped with a fish screen, on the Sacramento River. The fish screen would comply with NMFS and CDFG salmonid screening criteria. The Sankey Diversion would be located near Sankey Road, about 0.25 mile downstream of the confluence of the Sacramento River and the Natomas Cross Canal. The Sankey Diversion would have a total pumping capacity of 434 cfs, which includes 14 cfs for Bolen Ranch. Changes to the distribution system include construction of a new canal and relocation and extension of the existing Vestal Drain adjacent to the new canal between RD 1000's Pumping Plant No. 4 and the new Sankey Diversion. The Bennett and Northern Pumping Plants would be removed, as well as the Verona Diversion Dam. Giant garter snake refugia benches would be created in the new Highline Canal from Pumping Plant No. 4 to the new Sankey Diversion owned by The Natomas Basin Conservancy.

Phase II consists of constructing a new Elkhorn Diversion, equipped with a fish screen, on the Sacramento River. The Elkhorn Diversion would be located between Elkhorn and Elverta roads and have a 210 cfs pumping capacity. The Elkhorn Main Canal would be re-graded between the existing Prichard Pumping Plant and the new Elkhorn Pumping plant. The existing Prichard and Elkhorn Pumping Plants would be removed.

Phase III would conclude project implementation and consists of re-grading the Riverside Canal and making associated improvements to the internal conveyance system. The existing Riverside Diversion would be removed and giant garter snake refugia benches would be created in the new Riverside Main Canal from Pumping Plant No. 3 to the existing Riverside Pumping Plant.

Sankey Diversion –Alternative 1

Alternative 1 consists of constructing one new diversion with a fish screen on the Sacramento River near Sankey Road, about 0.25 mile downstream of the confluences with the Natomas Cross Canal. Other changes to the distribution system include:

- Constructing a new Highline Canal (Sankey Canal) along the landside of the Natomas Cross Canal south levee from the existing Northern Pumping Plant outfall to the new Sankey Diversion, with a connection to the existing Bennett Main Highline Canal;
- Construction of the Sankey Drain adjacent to the new Sankey Canal including a re-lift pumping plant near the Bennett outfall for recirculation of tailwater into the Northern and Bennett systems;
- A new Highline Canal (Garden Highway Canal) from the proposed Sankey Diversion;

- Re-grading part of the Elkhorn Main Highline canal and the Riverside Main Highline Canal;
- Improving the internal drainage canal system, including dredging of the North Drainage Canal from the V-Drain to Highway 99, and upgrading the County Line Check and Lift Pump and the Elkhorn Check and Lift Pump;
- Enlarging culverts for three road crossings over the North Drainage Canal;
- Decommissioning and removing the existing Verona Diversion Dam and Lift Pumps; and
- Decommissioning and removing the five existing Natomas Mutual Diversions at the Northern, Bennett, Prichard, Elkhorn, and Riverside pumping plants, and the small privately-owned pump for the Bolen Ranch property.

Prichard Diversion- Alternative 2

Alternative 2 consists of constructing one new diversion with fish screens adjacent to the existing Prichard Pumping Plant. Other changes in the distribution system include:

- Constructing a new Highline Canal (Garden Highway Canal) from the new Prichard Diversion north along Garden Highway, to Sankey Road;
- Constructing a new Highline Canal (Sankey Canal) along the landside of the Natomas Cross Canal south levee from the Garden Highway Canal to the existing Northern Pumping Plant outfall, with a connection to the existing Bennett Main Highline Canal at the Bennett Pumping Plant outfall, including a new turnout for the replacement supply to the Bolen Ranch Property;
- Re-grading a section of the Elkhorn Main Highline Canal and the Riverside Main Highline Canal, and the addition of one re-lift pump to the existing Pumping Plant No. 3 sump for replacement of the Riverside Pumping Plant supply;
- Improving the internal drainage canal system, including dredging of the North Drainage Canal from the V-Drain to Highway 99, and upgrading control structures at the County Line Check and Lift Pump and the Elkhorn Check and Lift Pump;
- Enlarge culverts for three road crossings over the North Drainage Canal, between RD 1000's Pumping Plant No. 2 and the intersection with the East Drainage Canal;
- Decommissioning and removing the existing Verona Diversion Dam and Lift Pumps; and
- Decommissioning and removing the five existing Natomas Mutual Diversions at the Northern, Bennett, Prichard, Elkhorn, and Riverside pumping plants, and the small privately-owned pump for the Bolen Ranch property.

Conservation Measures

The following conservation measures have been developed by NMWC and apply to all three alternatives for the proposed project.

Terrestrial Habitat

Vegetation clearing would be restricted to the minimum area necessary to complete the construction activity.

Re-vegetation and restoration would take place after the Prichard, Elkhorn, and Riverside facilities are demolished. A mix of native riparian vegetation would be planted at each site.

Take avoidance, minimization, and mitigation measures for canal/ditch maintenance have been developed by NMWC as part of its application for participation in the Natomas Basin Habitat Conservation Plan (NBHCP). These would be used throughout its service area to minimize potential adverse effects of project construction on giant garter snakes and other species inhabiting the canals and irrigation ditches.

Comply with the tree preservation ordinances as applicable. Trees to be protected would be fenced at their driplines during construction with orange construction fencing to avoid damage to limbs and trunks and soil compaction from heavy equipment during construction. Mitigation for the removal of native trees (e.g., valley oaks) which are greater than 6 inches diameter at breast height would be conducted pursuant to County ordinances.

Fish and Wildlife

A Fish Rescue Plan would be implemented prior to construction to minimize fish stranding from cofferdam placement and removal.

Avoid or minimize impacts to hydrology and water quality. Compliance with the NPDES permit would include development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) for the construction site, including staging areas. Required elements of the SWPPP include: Specific erosion and sediment control practices; post-construction controls; and monitoring and inspection.

Maintenance activities would be designed to minimize erosion and control the release of sediments into waterways and also meet the Basin Plan's water quality objectives.

Develop a Construction Erosion and Sedimentation Control Plan and include the following measures:

- *Restrictions upon storage and stockpiling of construction materials, including vehicles and supplies, and chemicals or other hazardous materials, to designated construction staging areas.*
- *Designation of vehicle/equipment fueling and wash-down areas outside of the floodway and designed to contain potential spills.*
- *Regular maintenance of construction vehicles and equipment such that leaks of fuels, lubricants, and other materials are minimized.*
- *Removal of construction litter/debris and proper disposal practices at the end of each construction day, particularly prior to the start of the rain season.*

- *Requirement to minimize near- and in-river activities to the extent possible.*
- *Erosion control measures that prevent soil or sediment from entering the river, such as straw bale barriers and sediment traps or basins and including daily monitoring to ensure the effectiveness of such controls. Straw bales and/or silt fences would be placed between construction grading areas, the river, and channels to ensure that silt does not enter the river or associated channels.*
- *Terms limiting the period or type of construction activities that occur within the ordinary high water line of the Sacramento River upstream and downstream of the Proposed Action area.*
- *Water pumped from within cofferdam(s) and other construction zones would be discharged into settling basins. Sediment would then be allowed to settle until turbidity levels are below ambient water quality conditions prior to release back to project waterways.*
- *Implementation of post-construction management activities including restoration or improvement of drainage patterns and stabilization of stream banks and hillsides (upland areas) within the construction area; stabilization may include re-vegetation with a seed mix of plants native to the area, mulch or some other form of protection.*

Preparation of a Spill Prevention and Countermeasure Plan would be completed before initiating construction.

Best Management Practices (BMPs) for construction activities would be designed to minimize erosion and control sedimentation so that the release of sediments and other materials into the river is minimized. Specifically, the BMPs are intended to: minimize soil disturbance/vegetation removal; stabilize and revegetate soils after disturbance and before the rainy season; trap loosened sediments; and design an adequate stormwater runoff control system.

All materials to be removed from the river and canals would be deposited in designated disposal locations and stabilized prior to re-watering.

The Streambed Alteration Agreement application and conditions would include the following:

Sacramento River
Removal of vegetation would occur only when absolutely necessary.

Requirement to stabilize and revegetate disturbed soil surface before the rainy season.

All contractors and subcontractors doing the work would be provided copies of the Streambed Alteration Agreement by the applicant. Copies of the agreement would be readily available at work sites at all times during periods of active work

and be presented to any CDFG personnel, or law enforcement personnel from another agency upon demand.

The operator would monitor instream turbidity levels during construction activities and adhere to those specifications for turbidity set forth by the Central Valley Regional Water Quality Control Board's (CVRWQCB) waste discharge requirements issued for the project. If turbidity or pH levels have not been set by the CVRWQCB, then CDFG would require that water quality monitoring for: (1) pH, if necessary; (2) turbidity; and (3) settleable solids be performed using procedures in accordance with Standard Methods 17th edition (American Public Health Association 1991).

- *The CDFG required samples would be collected as follows: one sample 100 feet upstream from the Proposed Action area and one sample 300 feet downstream from the Proposed Action area within the turbidity plume. If no visible plume exists, the downstream sample would be collected 2 feet from the shoreline at the 300-foot point. All sample results would be maintained in a log on-site, and be available for immediate inspection.*

- *All instream activities and any discharges due to project activities would at all times attain the turbidity requirements of no more than 20 percent turbidity above the background level, and no more than 0.5 percent pH above the background level. Measurements of pH would only be necessary if water from within the cofferdams needs to be pumped into desilting basins to allow sediment to settle out and then returned to the Sacramento River (at a rate slow enough to minimize the potential for disturbing sediment in the rivers, and inadvertently increasing turbidity), downstream of the intake structures.*

  Instream silt containment barriers would be installed to catch material from the worksites. These barriers would be installed immediately downstream of the Proposed Action area.

  Fines and silt-laden gravels would be removed from the Proposed Action area containment barrier areas upon completion of the project. These gravels would not be placed where they may enter State Waters.

  Areas of disturbed soil, which slope toward the river, would be stabilized to reduce erosion potential. Planting, seeding, and mulching are conditionally acceptable. Where suitable vegetation cannot reasonably be expected to become established, non-erodible material would be used for such stabilization. Installation of non-erodible materials not described in the original project description would be coordinated with the CDFG.

Passage of sediment beyond the sediment barrier is prohibited. If the sediment barrier fails to retain sediment, corrective measures would be employed, and CDFG notified immediately.

Spoil sites would not be located within the river, where spoil could be washed back into the river, or where it could cover aquatic or riparian vegetation.

Temporary fills would be constructed of non-erodible materials, and be removed immediately upon work completion.

The Contractor would have readily available plastic sheeting or visqueen, and cover exposed spoil piles and exposed areas to prevent these areas from eroding loose soil into the river. These covering materials would be applied when it is evident rainy conditions threaten to erode loose soils into the river.

Spoil would not be placed over riparian vegetation except as specifically noticed to and accepted by the CDFG.

Fill materials may come from on-site sources or be imported. Fill would be limited to the minimal amount necessary to accomplish the agreed-upon activities. Fill material would be free from contaminants such as trash, debris, or other materials deleterious to aquatic life or water quality and be heavily compacted. Fills within the normal high-water mark would be armored against erosion by the placement of rock riprap, gabions, concrete, or other suitable non-erodible material. To prevent undercutting, the armor would be keyed in place.

Precautions would be taken so that runoff from steep, erodible surfaces is diverted into stable areas with little erosion potential. A sufficient number of water bars would be placed on dirt roads, cat tracks, or other work trails to control erosion.

Erosion control measures would be utilized throughout all phases of operation where sediment runoff from exposed slopes threatens to enter waters of the state. At no time would silt-laden runoff be allowed to enter the river or be directed to where it may enter the river.

If silt catchment basins are used, the basins would be constructed across the stream immediately downstream of the Proposed Action area prior to the beginning of work. Catchment basins would be constructed of materials that are free from mud and silt. Upon project completion, basin materials, along with the trapped sediments, would be removed from the stream in such a manner that said removal does not introduce sediment to the stream.

The silt catchment device would be maintained throughout the life of the project to ensure proper function, including, but not limited to, periodic excavation of accumulated sediments.

Staging and storage areas for equipment, materials, fuels, lubricants and solvents, would be located outside of the stream channel and banks. Equipment or vehicles driven and/or operated within or adjacent to the stream would be checked and maintained daily, to prevent leaks of materials that if introduced to water could be deleterious to aquatic life. Vehicles should be moved away from the stream prior to refueling and lubrication.

Heavy equipment driven in wet portions of the river channel to accomplish the necessary work would be authorized only when the vehicle is completely clean of petroleum residue and water levels are below the gear boxes of the equipment in use or lubricants and fuels are sealed such that inundation by water would not result in leaks. The equipment would be steam-cleaned prior to entering a watercourse.

Work consisting of pouring concrete would only be done in dewatered areas. Concrete would be poured in leak-proof forms. Gunnite may be sprayed.

Structures and associated materials not designed to withstand high seasonal flows would be removed to areas above the normal high-water mark before runoff from the first seasonal rains or by November 1.

The use of wood preservatives on wood in contact with the water would be prohibited.

Stationary equipment such as motors, pumps, generators, and welders located within or adjacent to a channel would be positioned over drip pans.

The cleanup of spills would begin immediately. The CDFG would be notified of spills immediately by the Operator, and would be consulted regarding cleanup procedures.

Mechanical operating equipment would be cleaned and maintained prior to use. Construction waste products would be removed from the project site and dumped at a legal point of disposal.

No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, oil or petroleum products, or other organic or inorganic material from construction or associated activity of whatever nature would be allowed to enter into, or placed where it may be washed by rainfall or runoff into

the river. When operations are completed, excess materials or debris would be removed from the work area. No rubbish would be deposited within 150 feet of the high water mark of the river.

Natomas Cross Canal and Internal Drainage Canals

Prior to working within the Sacramento River, Natomas Cross Canal, and interior drainage canals (State Waters) all heavy equipment would be closely examined for oil and fuel discharges. All equipment operated within or adjacent to the waterway would be checked and maintained daily to prevent leaks of materials that if introduced to water could be deleterious to aquatic life. Petroleum products, and other substances which could be hazardous to aquatic life, resulting from project related activities, would be prevented from contaminating the soil and/or entering waterways. Any of these materials, placed within or where they may enter a waterway, by the Operator or any party working under contract, or with the permission of the Operator, would be removed immediately. The CDFG would be notified immediately by the Operator of any spills and would be consulted regarding clean-up procedures.

Raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances which could be hazardous to aquatic life, resulting from project related activities, would be prevented from contaminating the soil and/or entering waterways. Any of these materials, placed within or where they may enter a waterway, by Operator or any party working under contract, or with the permission of the Operator, would be removed immediately.

Adequate erosion control and water pollution control measures would be adopted and maintained for the duration of the project in order to prevent deleterious materials from entering the waterway. The Operator/Contractor would install, when practical, a siltation curtain in close proximity to the project site. The siltation curtain would be of effective design to limit and abate heavily silted materials from impacting State Waters.

Turbidity levels in State Waters resulting from project related activities would not exceed 20 percent of the natural turbidity levels as measured 200 feet upstream of the project site. Upon CDFG determination that turbidity/siltation levels resulting from project related activities constitute a threat to aquatic life, activities associated with the turbidity/siltation would be halted until effective CDFG approved control devices are installed or abatement procedures are initiated.

Slope preparation and rock placement would be conducted during periods of low water to minimize the potential water quality impacts of placing the rip-rap along the water's edge. The bank stabilization material would extend above the normal

high-water mark. Only clean material that is free of trash, debris and deleterious material, such as, rock rip-rap or broken concrete free of exposed rebar would be used as bank stabilization. Asphalt would not be used as rip-rap material. Broken concrete should be sized 18 to 24 inches in its greatest dimension. All rock slope protection work would be done from the top of the stream or canal bank unless otherwise authorized. Equipment would not be operated in the flowing portion of the river without the prior approval of the CDFG.

Equipment and material staging and storage areas would be located away from the water side of the levee. All equipment, maintenance materials and other items considered to be pollutants would be stored away from the water. Any spills of hazardous materials, petroleum products or other pollutant would be reported immediately to the appropriate agency without delay.

During construction, the Operator/Contractor would not dump any litter or construction debris within the stream zone. All such debris and waste would be picked up daily and properly disposed of at an appropriate site. All construction related materials would be removed from the work site upon completion of the project.

Creosote treated wood products would not be used in State Waters. Alternatives that may be appropriate include steel, concrete, plastic or wood products treated with EPA approved preservatives that are not deleterious to aquatic life.

Avoid or minimize adverse effects to special-status fish species, including Federal and State-listed species and other species of concern. This includes several species-specific avoidance and minimization measures, which are identified below.

- *Compliance with applicable measures identified in Service and NMFS biological opinions for other projects in effect for federally listed species would be established.*

- *Construction and maintenance activities would be conducted according to site-specific construction plans to minimize the potential for sediment input into the system. Plans would comply with SWRCB, CVRWQCB and CDFG requirements.*

- *Construction and maintenance activities would be conducted according to site-specific plans to minimize the potential for contaminants to enter water courses and drainage, and to effectively respond to accidental spills. Work or equipment operation in flowing water would be minimized by constructing cofferdams to isolate the construction activities from flowing water.*

- *Avoid operation, land management, and incidental use actions that could disturb evaluated species during sensitive periods.*

- *In-river construction activities associated with the Proposed Action would be limited to the period from July 1 through November 30.*

- *Continue to examine Service beach seining data from established survey sites within, and adjacent to, the Proposed Action area (i.e., Discovery Park, Elkhorn, Verona, Sand Cove, and Knights Landing).*

- *Disruption of the streambed at, and adjacent to, the construction site would be minimized by limiting the areas to be cleared, graded and re-contoured.*

- *Water pumped from within the cofferdams in the internal irrigation system, which is hydraulically isolated from the Sacramento River, would be disposed of; if necessary, water from within the cofferdams would be pumped into desilting basins to allow sediment to settle out and returned to the Sacramento River (at a rate slow enough to minimize the potential for disturbing sediment in the rivers, and inadvertently increasing turbidity), downstream of the intake structures.*

- *Sheet pilings for the cofferdam would be vibrated into place.*

- *Pile driving would occur during daylight hours only and would commence at low energy levels and slowly build to impact force.*

- *A Fish Rescue Plan would be developed to minimize potential impacts resulting from placement of the cofferdam, and to safely evacuate fish within the cofferdam before dewatering.*

- *A Post Construction Evaluation and Assessment Plan would be prepared for review and approval by the Service, NMFS, and CDFG. A draft Fish Screen Operations Procedure Plan (Operations and Maintenance Plan) has been prepared for review and approval by the Service, NMFS, and CDFG; it is included as an appendix to the ASIP. The Operations and Maintenance Plan includes procedures for: (1) operating the fish screens and the intake facilities under a variety of environmental conditions and diversion needs; and (2) periodic maintenance procedures required to ensure the effectiveness of the screens over the design life of the facilities.*

- *A Fish Rescue Plan would be implemented prior to cofferdam closure. The cofferdam would be constructed via sequential placement of sheet piles from the upstream to the downstream end. Prior to closure of the cofferdam, biologists representing Reclamation, NMFS, Service, and Natomas Mutual would snorkel the cofferdam area to conduct a visual count of anadromous salmonids and other Species of Primary Management Concern present to obtain an estimate of the number and type of fish within the cofferdam area. The visual estimate would be conducted from the upstream to the downstream end of the cofferdam. The*

biologists conducting the snorkeling procedure would horizontally space themselves to provide complete visual coverage of the survey area. Each biologist would carry and use a counting device. As they observe a fish, they would note whether it is a steelhead, a Chinook salmon, an unidentified salmonid, a green sturgeon, or another fish species. The procedure would be performed twice. Repetition of the procedure would provide a first measure of the variation of the visual count. If there is a wide variation between the two estimates, a third visual count would be conducted to obtain a relatively accurate estimate of the number of fish within the cofferdam.

- *After the visual counts are completed, a "crowding net" would be placed at the upstream end of the cofferdam. The crowding net would be constructed of 0.25-inch knotless nylon mesh, 20 feet deep, of sufficient width to span the extension of the cofferdam, with float and lead lines. Because the substrate bottom inside the cofferdam would be of variable elevation, the 20-foot depth of the net is sufficient to reach the deepest areas. Individuals on each side of the cofferdam would hold the crowding net tight at the top and would proceed slowly from the upstream to the downstream end of the cofferdam. Commercial divers would be inside the cofferdam, guiding the bottom of the net, and removing the net from snags, as needed. This procedure would ensure a smooth transition of the net from the upstream to the downstream end of the cofferdam.*

- *At the downstream end of the cofferdam, one sheet pile panel, approximately 4 feet wide, would remain open. With assistance of the individuals at the top of the cofferdam and the commercial divers inside the cofferdam, the net would be brought to the downstream end, and collapsed such that it is flush against the surface of the open panel. The net would remain in place at this location, and manipulated such that the last panel can then be driven into place, with the net serving as an excluding net, preventing fish from reentering the cofferdam. The cofferdam would then be closed. At this time, the biologists would repeat the snorkeling procedure described above to determine whether fish still remain in the cofferdam, and if so, how many. If less than 10 juvenile or adult fish Species of Primary Management Concern are estimated to remain in the cofferdam after its closure, then the fish removal process would be considered complete. Conversely, if 10 or more juvenile or adult fish Species of Primary Management Concern remain within the cofferdam, then the netting procedure would be repeated. After the netting procedure is repeated, the net would be collapsed, and with assistance of commercial divers, the bottom of the lead line would be brought up against the face of the cofferdam. The outside edges of the net would be clasped and pulled up, effectively forming a purse. The fish net would be brought up to the surface, and captured fish would be immediately returned to the river, implementing NMFS' standard protocols for handling anadromous salmonids that are listed under the ESA.*

- *When construction is complete, removal of the sheet piles would be conducted sequentially, from the downstream end to the upstream end, to minimize potential of drawing fish into the construction area as the sheet piles are removed.*

- *No later than one month following implementation of the Fish Rescue and Salvage Plan, a Draft Fish Salvage Operation Report would be prepared and submitted to NMFS. The Draft Fish Salvage Operations Report would document the fish rescue and salvage operations, including: (1) the number of fish salvaged; (2) identification and fork length of each species salvaged; and (3) identification and fork length of each sensitive species salvaged, if possible.*

Special Status Species:

Giant Garter snake

No more than 24 hours prior to the commencement of certain construction activities (i.e., clearing, grading, excavation, etc.) in giant garter snake habitat, a pre-construction survey would be undertaken by a Service qualified biologist. The biologist would prepare a field report documenting the monitoring efforts and would submit a copy to the Service's, Sacramento Fish and Wildlife Office.

All work within potential giant garter snake habitat, and within 200 feet of giant garter snake aquatic habitat and adjacent uplands, would occur between May 1 and October 1, with the exception of year one of construction. Construction during year one is proposed to extend until November 1. A variance from the Service's established construction work windows for the giant garter snake has not been requested as of the preparation of this document.

To reduce potential impacts to giant garter snakes, any dewatered aquatic habitat would remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of such habitat.

Existing rock piles and riprap at the Northern and Bennett pumping facilities would be avoided and left undisturbed to avoid and minimize the impact of the proposed action on giant garter snakes which may use these areas and hibernacula.

Construction and maintenance personnel would participate in a Service-approved worker environmental awareness training program. Under the guidelines of this program, workers are informed about the presence of giant garter snakes and habitat associated with the species and that unlawful take of the animal or destruction of its habitat is a violation of the ESA. Prior to construction activities, a qualified biologist approved by the Service would instruct construction personnel about: (1) the life history of the giant garter snake; (2) the importance of irrigation canals, marshes/wetlands, and seasonally flooded

areas, such as rice fields, to the species; and (3) the terms and conditions of the biological opinion. Colored photographs of the giant garter snake would be handed out during the training session for posting on the job site. Proof of this instruction would be submitted to the Service's, Sacramento Fish and Wildlife Office.

The monitoring biologist would be available thereafter on an on-call basis. If a snake is encountered during construction activities, the biologist would have the authority to halt work until appropriate corrective measures have been implemented or it is determined that the snake would not be harmed. Giant garter snakes encountered during construction activities would be allowed to move away from construction activities on their own. Capture and relocation of trapped or injured individuals can only be attempted by personnel or individuals with current Service recovery permits pursuant to Section 10(a)1(A) of the Federal ESA.

Vegetation clearing would be confined to the minimal area necessary to complete the construction activity. Dredging of channels to remove accumulated sediments would be accomplished by using equipment located on, and operated from, the top of the bank, with the least interference practical for emergent vegetation.

The number of access routes, number and size of staging areas, and the total area of the Proposed Action activity would be minimized. Routes and boundaries would be clearly demarcated.

Movement of heavy equipment to and from the project site would be restricted to established roadways to minimize habitat disturbance. The Project-related vehicles would observe a 20-mile-per-hour speed limit within construction areas, except on county roads and on state and federal highways. This is particularly important during periods when giant garter snakes may be basking or moving on roadways. During construction operations, stockpiling of construction materials, portable equipment, vehicles, and supplies would be restricted to the designated construction staging areas.

Install protective fencing between potentially suitable giant garter snake upland habitat and the specific work area to minimize the chance of "take" (at the discretion of the Service).

Natomas Mutual and its contractors would ensure that the temporary loss of giant garter snake habitat is confined to the Proposed Action footprint.

To eliminate attraction to predators of the snake, all food-related trash items, such as wrappers, cans, bottles, and food scraps, would be disposed of in closed containers and removed at the end of each workday from the entire work area.

Tightly woven fiber netting or a similar material would be used for erosion control and other purposes to prevent the entanglement of giant garter snakes that may occur with monofilament or jute netting. This limitation would be communicated to the contractor using special provisions included in the bid solicitation package.

Swainson's Hawk

Pre-construction surveys would be conducted within a 0.5 mile of project activities for nesting Swainson's hawks. These surveys would be conducted according to the Swainson's Hawk Technical Advisory Committee's (May 31, 2000) methodology or updated methodologies, as approved by CDFG. If any nests are found, they would be monitored to determine whether construction activities are likely to impact nesting birds. If it is determined by the biological monitor that a nesting pair appears to be affected by construction activities, work in the vicinity would stop until the young and fledged or until the biologist in conjunction with CDFG, determines that activities can proceed.

Swainson's hawk nests and active nesting territories in the vicinity of the Proposed Action area would continue to be monitored until construction takes place. Ideally, no construction would take place within 0.25 mile of an active nest during the nesting season, typically from May 1 through August 30, or until Swainson's hawks have left the nest. However, the size of the buffer area may be reduced if a qualified biologist and CDFG determine that construction activities are not likely to adversely affect individual nesting pairs. The non-disturbance distance may be modified on a case by case basis (with CDFG approval) if a qualified biological monitor determines, through repeated observations, that the activity is not disruptive to the breeding pair. Any such nests would be monitored on a daily basis to determine whether construction activities are likely to impact nesting birds. Where disturbance to a Swainson's hawk nest cannot be avoided, such disturbance would be temporarily avoided (i.e., defer construction activities until later in the nesting cycle, such as after July 15th, when the adults are less likely to abandon the nest).

The footprint of the new Elkhorn Diversion would be staked in the field prior to construction. Any mature trees that require removal in the vicinity of an active Swainson's hawk nest would be removed during the non-nesting season (from November through the end of February). If the removal of trees is not possible during the non-nesting season, Natomas Mutual would consult with CDFG regarding the proposed timing and additional measures that may be necessary to avoid disturbing nesting birds.

Specific measures to reduce nest disturbance, to prevent loss of nest trees, and to mitigate the loss of Swainson's hawk nest trees are provided in the NBHCP (City of Sacramento et al., 2003, page V-9 to V-12). These measures would be adhered to during construction of the Proposed Action. Specific measures identified to

mitigate the loss of Swainson's hawk nest trees include a requirement that 15 trees (5 gallon container size) are to be planted within the TNBC habitat reserves for every Swainson's hawk nest tree that is removed. Monitoring of replacement trees would be conducted for a period of 5 years, and remedial action would be taken, to ensure that a 100 percent success rate is achieved.

If a Swainson's hawk nest is abandoned or young fledge prematurely, due to construction activities related to the Proposed Action, Natomas Mutual would contact the appropriate authority to secure the juveniles and safely transport them to the local raptor center in Davis, California.

Valley Elderberry Longhorn Beetle
The Service's 1999 Conservation Guidelines for the Valley Elderberry Longhorn Beetle (VELB) would be followed. Guidelines provided in the formal programmatic consultation prepared by the Service (1997) for projects with relatively small effects on the VELB would be followed.

Temporary fencing would be erected around adjacent riparian habitat that is not to be cleared to avoid disturbance to this sensitive habitat and any elderberries that may be present in these areas.

Burrowing Owl
Pre-construction surveys for burrowing owls would be conducted within 30 days prior to commencement of construction activities. Active burrowing owl burrows would not be disturbed (within 50 meters) from February 1 through August 31, or until the young are capable of independent survival.

To protect burrowing owls, no disturbance of occupied burrows would be permitted during the nesting season (typically February 1 through August 31) unless a qualified biologist approved by CDFG verifies that either the birds have not begun egg-laying and incubation, or that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

No disturbance within would take place 50 meters (about 160 feet) of occupied burrows during the non-breeding season of September 1 through January 31 or within 75 meters (about 250 feet) during the breeding season of February 1 through August 31.

Cliff Swallows
Swallow nests on existing project facilities would be removed during the non-nesting season. The Bennett facility would not be demolished during the nesting season unless all nests have been removed.

Other Actions Within the Study Area

A number of planning activities are ongoing within the project area. These activities are not a part of this project; however, they have the potential to directly impact the proposed project. These activities include the NBHCP, South Sutter County Specific Plan, SAFCA Natomas Levee Improvement Project, and the Sacramento River Water Reliability Study (Reclamation 2005b).

The NBHCP (City of Sacramento et al. 2003) was designed to reconcile the needs of 22 special-status species with planned land development and water applications in the Basin. The City of Sacramento, Sutter County, and the Natomas Basin Conservancy are all permittees under the NBHCP. The NMWC participated in this effort; however, they did not apply for an Incidental Take Permit under the plan and accordingly, do not have take authorization for their activities in relation to federally listed species under the jurisdiction of the Service.

The South Sutter County Specific Plan (2001) was developed by the Sutter County Board of Supervisors. The plan designated a 3,500 acre area for industrial and commercial development in south Sutter County, adjacent to the Sacramento County boundary. An Environmental Impact Report was developed and finalized in 2001, to disclose, analyze, and provide mitigation measures for potentially significant effects associated with the implementation of the plan. While the South Sutter County Specific Plan designated much of this area for industrial and commercial development, the majority of the area remains in agricultural use.

The SAFCA has evaluated the levee stability of the east bank of the Sacramento River north of Sacramento in the Basin area. They have proposed a project along the Sacramento River east levee to construct a raised adjacent setback levee from the Natomas Cross Canal to 1,700 feet south of the North Drainage Canal, with seepage berms where required to reduce seepage potential and install woodland plantings. The SAFCA has determined that the adjacent setback levee project in the area of the proposed Sankey pumping plant could create habitat for fish and wildlife and potentially reduce flood damage. The SAFCA has prepared an EIR for the proposed footprint of the project which has not been implemented to date (SAFCA 2007).

The Sacramento River Water Reliability Study is a joint effort between Reclamation and Placer County Water Agency (PCWA) (Reclamation and PCWA 2005b). The goal of the study is to develop a water supply plan that is consistent with the Water Forum Agreement objectives of pursuing a Sacramento River diversion to meet water supply needs of the Placer-Sacramento region and promoting ecosystem preservation along the Lower American River. Several alternatives are examined in the study, at least one of which examines the feasibility of consolidating one pumping facility with a NMWC pumping plant on the Sacramento River. Reclamation and PCWA released an Initial Study for the project in March 2005. A final EIS/EIR is anticipated in 2008.

Additional development plans exist for North Natomas and Metro Air Park areas, these plans provide a description of potential urban development in the Basin.

BIOLOGICAL RESOURCES

Habitat

The Sacramento River is the largest river in California, conveying about 22 million acre-feet of annual runoff. The natural geomorphic process of erosion and deposition along the Sacramento River channel within the project area has generally been modified by humans throughout the period of recent development since about 1850. Construction of Shasta Dam, 9 miles north of Redding, resulted in a substantial reduction in winter flood flows and an increase in summer stream flows. Riverine habitat is defined primarily by water depth, water quality, temperature, velocity, and substrate. Many of these factors in the proposed project area are controlled by upstream reservoir releases and diverters.

Mature riparian forests and riparian scrub occur within the proposed project area along the Sacramento River and the Natomas Cross Canal. A component of this habitat is shaded riverine aquatic (SRA) cover. The SRA cover is defined as the unique, near shore aquatic area occurring at the interface between a river (or stream) and adjacent woody riparian habitat (Service 1992). Key attributes of this aquatic habitat type include the adjacent bank being composed of natural, eroding substrates supporting riparian vegetation that either overhangs or protrudes into the water. The water contains variable amounts of woody debris, such as leaves, logs, branches and roots, and often substantial detritus. Often much of the instream vegetation consists of dead woody debris that has fallen from the overhanging riparian vegetation. However, whole trees, which periodically become dislodged from the adjacent eroding banks, also contribute to the instream structure of SRA cover. Water velocities, depths, and flows are variable. The Service designated SRA cover along the Sacramento River from Keswick Dam (River Mile [RM] 302) to Rio Vista (RM 13) as Resource Category 1 (see Table 1 for mitigation planning goals).

The size of any occurrence of SRA cover is defined by the length and width of the aquatic area. Widths can range from as little as 1 or 2 feet to as great as 50 or 60 feet. The area which comprises SRA cover may include several terrestrial components such as overhanging terrestrial vegetation and riverbanks. A maximum of 0.26 acre of SRA cover and 1.75 acres riparian forest are anticipated to be disturbed by the Proposed project.

Open water habitat occurs in the proposed project area in ditches and drains, operated by NMWC, where standing or slow moving water is at least 5 to 6 feet deep, as well as in the Sacramento River. Interior ditches and drains that do not dry up during the summer months support some aquatic vegetation such as duckweed, pondweed, *Elodea* sp., mare's tail, water primrose, and water milfoil. The amount of open water habitat that is anticipated to be affected by the proposed project is as much as 19.42 acres, depending on the alternative chosen for implementation.

Vernal pool resources within the Basin are limited to small pools generally located in the far eastern portion of the Basin. Impacts to vernal pools are not anticipated with implementation of proposed project activities.

Upland habitats within the Basin include grasslands, agricultural fields in active production, fallow fields, and various urban uses (residential and industrial). Grasslands in the proposed project area are typically found along levee crowns and side slopes, terraces below the levees, canal embankments, along road shoulders, access easements, powerline rights-of-way, and as ground cover beneath isolated trees in agricultural fields. Grasslands in the Basin would be mowed during routine maintenance activities. Grasslands in the proposed project area would still provide some cover, foraging, and breeding habitat for a variety of species. The amount of grasslands anticipated to be disturbed by the proposed project is as much as 84.96 acres, depending on the alternative chosen for implementation.

A variety of crops are produced in the Basin, with rice being the major crop. Rice fields are typically flooded for up to 5 months during the late spring/early summer. Rice fields provide highly significant wintering habitat for waterfowl, shorebirds, wading birds, and raptors of the Pacific Flyway. These fields also provide critical feeding grounds and post-breeding habitat for waterfowl and other migratory birds. A variety of migratory songbirds, pheasants, voles, mice, and the giant garter snake use these flooded fields for foraging and resting. In a letter to the U.S. Army Corps of Engineers dated April 19, 1993, the Service stated that these areas, particularly rice fields, provide high value aquatic resources within the Basin and are important on a local, regional, and national scale (Service 1993). Other agricultural fields, such as grain and row crops, are utilized by a variety of wildlife. The amount of agricultural land anticipated to be disturbed by the Proposed project is as much as 117.86 acres, depending on the alternative chosen for implementation.

Fallow fields provide cover, foraging, nesting, and breeding habitat for a variety of wildlife. The acreage of fallow fields varies from year to year.

Urban areas exist mostly in the southern portion of the Basin. Primarily within the City of Sacramento, this area has been, and continues to be developed for urban uses. A significant amount of reasonably foreseeable urban development is planned for the Basin. The City of Sacramento has plans to develop about 8,000 acres further into the Basin. The Metro Air Park is a plan developed by Sacramento County to develop 1,983 acres immediately east of the Sacramento Airport from agricultural fields into residential homes. Sutter County proposes to develop a minimum of 3,500 acres of agricultural lands in the northern portion of the Basin into industrial and commercial property. Urban areas provide limited habitat for wildlife species. The amount of urban development in the Basin increases each year, thus there is an unknown amount of urban acreage in the project area.

Fish

The fishery resources in the Sacramento River adjacent to the Basin consist of a diverse assemblage of fish species including native anadromous salmonids, other native anadromous fish, non-native anadromous fish, and resident native and non-native fish. Within California's Central Valley, the Sacramento River provides a corridor for the anadromous salmonids between its upstream reaches and the and the Pacific Ocean. More than 90 percent of the Central Valley

salmon spawning and rearing occurs within the Sacramento River system. The Sacramento River supports four runs (races) of Chinook salmon (fall-, late fall-, winter-, and spring-run) as well as Central Valley steelhead.

In the vicinity of the Basin, the Sacramento River acts primarily as a transport corridor for adults migrating upstream, juvenile fry rearing and dispersing, and smolts emigrating downstream. Timing of smolt emigration is dependent on species (or race), flow conditions, and water-year type.

Other native fish species occupy the Sacramento River at various stages of their life history and during seasonal intervals. They include: white sturgeon, green sturgeon, Pacific lamprey, river lamprey, Sacramento splittail, delta smelt, hardhead, Sacramento sucker, and California roach. Although they are not native, striped bass and American shad are species of management concern and are present at various times of the year in the Sacramento River.

The Natomas Cross Canal has a similar fish assemblage as the Sacramento River, except at low-flow periods, when the Verona Diversion Dam is installed. The Natomas Cross Canal is not believed to provide spawning or rearing habitat for salmonids or other fish species of concern; however, it may be an important salmonid migration corridor during certain times of the year.

Wildlife

The western fence lizard, common garter snake, gopher snake, western rattlesnake, and the federally listed giant garter snake are found within the Basin. Forage areas for raptors such as the red-tailed hawk, golden eagle, northern harrier, American kestrel, prairie falcon, turkey vulture, and the State listed Swainson's hawk also are found within the Basin. Mammals which use the Basin for forage, cover, or breeding include coyote, deer, river otter, muskrat, beaver, skunk, gray fox, and California ground squirrel. Ring-necked pheasant and California quail are known to use the Basin for nesting and foraging habitat.

Riparian areas in the Basin provide habitat for raptors such as the red-shouldered hawk and the State listed Swainson's hawk. Woodpeckers and other cavity nesters, as well as wood ducks use riparian areas in the basin for nesting and foraging habitat. Mammals such as the western gray squirrel utilize the riparian habitat for foraging.

Vegetated areas along the Natomas Cross Canal and along the ditches and canals throughout the internal portion of the Basin are important habitat for mallards, teal, wood ducks, great blue herons, American bittern, western grebes, and shorebirds, among others. The Basin is known to support large populations of wintering and migrating ducks, geese, and white-faced ibis.

Special Status Species

Federal and State special status species potentially occurring on the proposed project area and potential project impacts on these species are identified below. A species list for the proposed

project area can be found in Appendix A. The following information is provided for Reclamation's use in preparing a Biological Assessment.

Valley Elderberry Longhorn Beetle
The valley elderberry longhorn beetle (VELB) is a federally listed threatened species. The beetle is dependant on elderberry shrubs, which are a common component of the remaining riparian forests and adjacent upland habitats in the Central Valley. Sightings of VELB have occurred within or adjacent to the Basin. There is suitable VELB habitat (elderberry shrubs) along the western and southern borders of the Basin, along the East Drainage Canal, West Drainage Canal, and Main Drainage Canal. Other isolated shrubs occur in oak groves across the Basin.

Anadromous Fish
All four anadromous salmon runs (winter-run Chinook salmon, spring-run Chinook salmon, fall/late fall-run Chinook salmon), steelhead, and green sturgeon are present in the Sacramento River or adjacent to the Basin or the Natomas Cross Canal during some period in their life history. All are either listed by the California ESA and/or the Federal ESA, or are listed as candidates under the Federal ESA.

Delta smelt
Delta smelt have been found in the Sacramento River at Verona, about 1 mile upstream of the mouth of the Natomas Cross Canal. Delta smelt was listed by the Service as threatened on March 5, 1993. Critical habitat for delta smelt is designated as the entire legal Delta.

Longfin smelt
Longfin smelt are a State Species of Concern, due to their long-term declines in California. Longfin smelt have been collected as far upstream as Discovery Park, about 13 miles downstream of the proposed project site.

Giant Garter Snake
The giant garter snake is listed as a threatened species under the Federal ESA and the California ESA. Giant garter snakes have been recorded at several locations within the proposed project area. Giant garter snakes have adapted well to NMWC's water conveyance system; the canals, ditches, associated embankments and levees, are an essential component of the snake's habitat in the Basin. The Service has found that the Basin has the largest remaining population of giant garter snakes of its entire range and the maintenance of a viable population within the Basin is vital to recovering the species. The Service considers the entire Basin to be giant garter snake habitat.

Northwestern Pond Turtle
The northwestern pond turtle is a State Species of Concern. This species uses permanent wetlands, ponds, lakes, streams, and irrigation ditches. They leave the water for basking and egg-laying and may overwinter in upland sites. The canals throughout the Basin are suitable habitat for the species, while Fisherman's Lake in the southwestern portion of the Basin is high quality aquatic habitat for pond turtles. Many pond turtles were observed along the Natomas Main Drainage Canal during March 2001, during the mapping surveys for the NBHCP.

Migratory Birds
Swainson's hawk is State listed as a threatened species. Swainson's hawks typically only inhabit the Central Valley from March through September, during the breeding season. Swainson's hawks prefer large trees (valley oaks, cottonwoods, or willow) with a panoramic view for nesting. Foraging habitat within the proposed project area would include agricultural fields and grasslands. Several established nests occur along the western boundary of the proposed project area. This area provides large nesting trees within the riparian corridor of the Sacramento River.

Tricolored blackbirds are a Federal and State Species of Concern. Tricolored blackbirds nest in the Basin and have recently increased in population size. Combinations of large amounts of irrigated pastureland (foraging) with dense, healthy blackberry bushes (nesting) make the Basin an attractive breeding location for this species. Some of the farming practices in the Basin are not compatible with tricolored blackbird breeding patterns. The long-range success of the tricolored blackbird in the Basin is uncertain given existing farming practices and urban encroachment.

The Aleutian Canada goose was delisted by the Service on March 20, 2001; however, the species remains a Federal Species of Concern. The species is being monitored for a period of 5 years to determine if the threatened or endangered status should be reinstated. The Aleutian Canada goose winters in the Sacramento Valley and is an occasional winter visitor in the Basin. Row crops, especially rice, are foraging habitat for the species.

The western yellow-billed cuckoo is a Federal candidate species. Nesting habitat is riparian forests throughout the Central Valley. Cuckoos are not known to nest in the Basin; however, suitable habitat occurs along the Sacramento River.

The bank swallow is State listed as a threatened species and a Federal Species of Concern. Nesting populations are concentrated on eroding banks of Central Valley streams. The bank swallow occurs in the Central Valley during the breeding season (May through July). There is no suitable nesting habitat in the Basin; however, individuals from nearby nesting colonies have the potential to forage in the area. Foraging also could occur during migration.

Burrowing Owls
Burrowing owls are a Federal and State Species of Concern. This species is considered to be a year-round resident in the Sacramento Valley. They utilize existing burrows of small mammals, like those of the California ground squirrels. Burrowing owls are known to occur in the Basin in low numbers. However, there is a significant amount of available habitat in the proposed project area, including levees with California ground squirrel colonies.

FUTURE CONDITIONS WITHOUT THE PROPOSED PROJECT

The projected future condition without the proposed project is continued operation of the five existing pumping plants (two along the Natomas Cross Canal and three along the Sacramento River). These five diversions would remain unscreened and entrainment of fish would continue

to occur. The existing Verona Dam and pumps would continue to provide water to the two pumping plants in the Natomas Cross Canal during periods of low flow. Blocked fish passage (upstream and downstream passage) in low water years when the dam is in place would continue. Modifications to the existing infrastructure would not occur under future conditions without the proposed project.

FUTURE CONDITIONS WITH THE PROPOSED PROJECT

Proposed project features are described under the alternatives section. Future diversions and water deliveries for NMWC would remain consistent with existing water rights and water contracts. The NMWC future diversions would not substantially change existing water quality or quantity in the Sacramento River and Delta or affect conformance with the existing Operating Criteria and Plan Biological Opinion.

Effects on biological resources with the proposed project are related to construction and the long-term operation of the facility. These impacts are summarized in the following sections.

Proposed Action: Phased Sankey/Elkhorn Diversion

Aquatic Habitat
Potential benefits of this alternative include adding fish screens to both the Sankey and Elkhorn Pumping Plants, which would result in a reduction of entrainment of various species of fish, including State and federally listed fish. This alternative also includes removing the Verona Diversion Dam and pumps. This presumably would improve the riparian and aquatic habitat along the Natomas Cross Canal by allowing the area to revert to a more natural condition. Unimpeded access to upstream areas by migrating salmonids should result from removal of the dam and pumps from the canal.

Potential effects from the proposed project include, but are not limited to, modification of aquatic habitats, fish passage and survival, alteration of river sedimentation, and water quality effects. In-river construction and channel maintenance activities would result in temporary water quality impacts from increased turbidity and sediment mobilization.

At the Sankey site, it is not known what percentage of the shoreline is riprapped. Permanent disturbance of 75 linear feet of riparian vegetation and SRA cover would occur under the Proposed Action for this site.

At the Elkhorn site, construction would impact about 1.7 acres of riparian forest, riparian scrub, and SRA cover. A portion of the shoreline proposed to be disturbed is riprapped. About 0.26 acre of SRA cover and 1.29 acres of riparian forest are anticipated to be permanently disturbed with the Proposed Action.

Terrestrial Habitat
Effects to upland habitats including mixed sycamore groves, riparian scrub, oak woodlands, agricultural lands (including rice fields), and annual grasslands, are anticipated with the Proposed

Action. About 43.84 acres of oak woodland and agricultural lands are anticipated to be permanently affected. About 13.69 acres of agricultural land and annual grassland are anticipated to be temporarily affected by the Proposed Action.

Construction activities for the Proposed Action are not anticipated to impact seasonal wetlands or vernal pools. These habitat types occur in the extreme eastern portion of the Basin, while the construction footprint is mostly in the western portion of the Basin.

About 3.6 miles of canal and a portion of the adjacent grassland areas would be lost during construction, which is anticipated to last 1 to 2 summers. About 7 miles of canals are to be built for the proposed project, some of which would be placed at the location of the old canals. A corresponding amount of grasslands adjacent to the 7 miles of new canals are to be created or restored. The new canals are anticipated to provide habitat to the same suite of organisms that use the existing canals. With additional measures incorporated into the proposed project, the canals may provide a greater habitat quality over time than the existing canals offer. These measures include two flooded benches that would be actively planted as well as reduce the need for intrusive maintenance for at least 5 years. One bench would be located along a portion of the Sankey Canal. The other bench would be located along a portion of the Riverside Canal. Both benches would be located adjacent to the Natomas Basin Conservancy property.

Temporary disturbance to riparian scrub and ruderal vegetation along the banks of canals and ditches as well as temporary disturbance to a portion of the adjacent grassland are anticipated under the Proposed Action. This habitat is used as foraging habitat by several species within the Basin.

About 0.53 acre of oak woodland habitat is anticipated to be permanently disturbed under the Proposed Action.

Sections of the Basin may experience poor water quality (pH readings above 9.0) periodically under existing conditions. In a one time snapshot from May 20 through
July 2, 2003, Sills (2004) showed elevated pH levels at four locations in the basin. The Service is concerned that the proposed project could shift areas of poor water quality to areas where water quality is assumed to be similar to that of the Sacramento River. Since the Riverside area would not have an immediate source of fresh water from the Sacramento River with the implementation of the Project, water quality in this area could decline.

Fish

Construction of the proposed pumping plants at the Sankey and Elkhorn sites could result in direct and indirect losses of adult and juvenile fish, including among others, all runs of Chinook salmon as well as other native fishes of the Sacramento River. These impacts would principally occur during installation of the cofferdams. The project proponent has not identified how many linear feet of sheet pile would be required to complete the two cofferdams for this alternative. Impacts could occur at these locations as a result of dewatering the active channel following sheet pile installation. Both adult and juvenile Chinook salmon and other native fishes could be

crushed during earth movement or sheet pile installation. Both adults and juveniles could be stranded and lost during dewatering actions following the installation of sheet piling.

The Project activities that could impact delta smelt, green and white sturgeon, Sacramento splittail, all four runs of Chinook salmon, and Central Valley steelhead include any in-stream construction that occurs in the wetted channel of the Sacramento River. This includes, among other activities, dredging and construction activities related to sheet pile construction. The amount of dredging and the length of sheet pile required for the Proposed Action have not been developed yet.

Central Valley steelhead and at least one run of Chinook salmon could benefit from the Proposed Action. The removal of the Verona Diversion Dam is anticipated to increase passage for these species to spawning areas upstream of the Natomas Cross Canal.

Wildlife

The Proposed Action has the potential to affect numerous native snakes, lizards, raptors, shorebirds, waterfowl and other birds, and mammals, all of which forage and breed within the Basin. These animals rely on various habitats (grasslands, row crops, emergent vegetation along ditches and canals, riparian areas along the Natomas Cross Canal, riparian and SRA cover along the Sacramento River, as well as the open water found in the internal network of canals for the NMWC) in the proposed project area that could be disturbed by related activities. During construction there would be a temporary effect on wildlife populations; however, measures to encourage the re-colonization of disturbed areas by wildlife are included in the proposed project description. These measures include shallow flooded benches (giant garter snake refugia benches), buried rock piles, active replanting and reseeding of all disturbed areas and a reduced need for maintenance activities on the 7 miles of new canals for at least 5 years.

The construction of new sections of canals and drains included in the proposed project could have a long-term beneficial impact on native snakes, birds, and mammals. The proposed canals could increase connectivity for the native species that rely on the canal system for foraging, reproduction, and cover. A section of the Elkhorn Canal that is now concrete lined would be demolished and a new earth-lined canal would be constructed in its place. This could have a potential beneficial impact to the native species that rely on the canals in the Basin.

Special Status Species

The following information pertaining to special status species has been provided to aid Reclamation in their planning process for this proposed project, it does not constitute completion of section 7 consultation under the ESA.

Rough-winged swallows nest along the west bank of the North Drainage Canal. Should dredging activities extend this far north, swallow nests could be disturbed or destroyed. Cliff swallows nest under the Bennett Pumping Plant. The Bennett Pumping Plant would be removed during construction activities, so cliff swallow nests could be disturbed or destroyed during the nesting season. Construction within the proposed project area is not anticipated to occur adjacent to other established swallow nesting locations within the Basin.

Established Swainson's hawks' nests are located in the proposed project area. None are anticipated to occur within the proposed project footprint for the Proposed Action; however, several nests occur within 0.5 mile of proposed construction activities. Nesting hawks are sensitive to noise, vibration, and human activity in general. Construction activities within 0.25 mile of active nests could result in the breeding pair abandoning the nest and any eggs or chicks. Swainson's hawks which nest on the west bank of the Sacramento River, but still within 0.25 mile of construction activities also are susceptible to potentially abandoning their nests and young due to human disturbance from proposed project activities. Several trees which are potential nesting habitat for Swainson's hawks are proposed to be removed under the Proposed Action. This would result in a decrease in available nesting habitat for Swainson's hawks within the proposed project area.

Temporary disturbance to Swainson's hawk forage areas is anticipated to occur for the Proposed Action. Forage areas to be disturbed include row crops along a few of the canals in the Basin. Permanent disturbance is anticipated to a smaller amount of forage area. Permanent and temporary impact acreages to Swainson's hawk forage areas have not yet been developed.

Numerous additional migratory bird species could be affected by proposed project activities. These include, among others, tricolored blackbird, Aleutian Canada goose, western yellow-billed cuckoo, and bank swallow. Affects could occur from disturbance of nesting habitat, active nests and foraging habitat. The acreage of anticipated permanent impacts to migratory bird habitat is anticipated to be 44.64 acres, while temporary impacts is anticipated to be 82.55 acres.

Giant garter snakes could be disturbed by construction activities along canals, ditches, and rice fields throughout the proposed project area. Giant garter snakes could be disturbed by activities which remove vegetated cover and basking sites, fill burrows or crevices, and diminish the available prey. Efforts to widen existing canals and ditches would likely remove vegetation and cavities along the edges that snakes use for escape and rest. Temporary disturbances (impacts to potential habitat which would be restored within one growing season), could occur under the Proposed Action. Construction activities for the Proposed Action also could result in giant garter snakes moving into less optimal habitat, resulting in a greater risk of predation or other mortality. Giant garter snakes are known to use existing riprap and broken concrete at the Northern and Bennett Pumping Plants for hibernacula habitat. These areas are anticipated to be removed during construction activities.

In addition to potential construction impacts to giant garter snakes, the Proposed Action also is anticipated to provide improved habitat and connectivity for the species, through the construction of the Sankey Canal and the improvements to Elkhorn and Riverside canals. These improvements include the incorporation of flooded benches (giant garter snake refugia benches) and hibernacula along portions of Sankey and Riverside canals.

Northwestern pond turtles could be affected by proposed project construction for the Proposed Action. Foraging, breeding, and basking habitats are anticipated to be temporarily impacted

during construction, thus reducing the available habitat for the species. Additionally, the Natomas Cross Canal is assumed to be an area where pond turtle habitat is anticipated to be disturbed.

Suitable habitat for burrowing owls is anticipated to be disturbed during construction activities for the Proposed Action. This habitat occurs along the levees adjacent to canals and ditches where abandoned ground squirrel burrows occur.

Five elderberry shrubs are located within the proposed project footprint. The VELB could potentially be affected if elderberry shrubs of suitable size occur within 100 feet of proposed project activities.

Alternative 1: Sankey Diversion

Aquatic Habitat
Potential benefits of this alternative include adding fish screens to the Sankey Pumping Plant, which could result in a reduction of entrainment of various species of fish, including State and Federal listed fish and other at-risk species.

Potential effects from Alternative 1 are anticipated to be similar to those for the Proposed Action. Alternative 1 differs from the Proposed Action since it includes construction of a new pumping plant at the Sankey site only. A greater amount of sheet pile and a corresponding larger cofferdam would be anticipated for the Sankey site under Alternative 1 than for the Proposed Action, due to the increased size of the pumping plant. About 1,000 linear feet of shoreline would be permanently disturbed for Alternative 1, with an unknown (anticipated to be small) additional length of shoreline temporarily disturbed. Fewer effects would be anticipated to the Elkhorn site for Alternative 1, since no pumping plant would be constructed there.

Terrestrial Habitat
Construction of the Garden Highway Canal would be required for Alternative 1. Dredging of the North Drainage Canal would be required as part of this alternative. About 90.18 acres of oak woodland and agricultural areas are anticipated to be permanently effected. About 114.75 acres of agricultural and grassland areas would be temporarily effected. Other effects to habitat are anticipated to be similar to the Proposed Action.

Fish
The future conditions with the proposed project for fish for Alternative 1 are similar to those under the Proposed Action.

Wildlife
The future conditions with the proposed project for wildlife for Alternative 1 are similar to those under the Proposed Action.

Special Status Species
The future conditions with the proposed project for special status species for Alternative 1 are expected to be similar to those under the Proposed Action, with the exception of effects related to the dredging of the North Drainage Canal.

Alternative 2: Prichard Diversion

Aquatic Habitat
Potential benefits of this alternative include adding fish screens to the new Prichard Pumping Plant, which would result in a reduction of entrainment of various species of fish, including State and Federal listed fish and other at-risk species.

Potential effects from Alternative 2 are anticipated to be similar to those for the Proposed Action. Alternative 2 differs from the Proposed Action since it includes construction of a new pumping plant at the Prichard site only. Fewer effects would be anticipated to the Sankey and Elkhorn sites for Alternative 2, since no pumping plant would be constructed there.

Terrestrial Habitat
Dredging of the North Drainage Canal would be required as part of this alternative along with the construction of a new Highline Canal from the new Prichard Diversion to Sankey Road. About 62.1 acres of oak woodland and agricultural areas are anticipated to be permanently effected. About 112.88 acres of agricultural and grassland areas are anticipated to be temporarily effected. Other effects to habitat are anticipated to be similar to the Proposed Action.

Fish
The future conditions with the proposed project for fish for Alternative 2 are similar to those under the Proposed Action.

Wildlife
The future conditions with the proposed project for wildlife for Alternative 2 are similar to those under the Proposed Action.

Special Status Species
The future conditions with the proposed project for special status species for Alternative 2 are expected to be similar to those under the Proposed Action, with the exception of effects related to the dredging of the North Drainage Canal.

DISCUSSION AND CONCLUSIONS

The recommendations provided herein for mitigation and the protection of fish and wildlife are in conformance with the Service's Mitigation Policy as published in the Federal Register (46:15; January 23, 1981). The Mitigation Policy provides Service personnel with guidance in making recommendations to protect, conserve, and enhance fish and wildlife and their habitats. The policy helps ensure consistent and effective Service recommendations, while allowing agencies

and developers to anticipate Service recommendations and plan early for mitigation needs. The intent of the policy is to provide leadership to conserve, protect and enhance fish and wildlife species and their habitats.

Under the Mitigation Policy, resources are assigned to one of four distinct Resource Categories, each having a mitigation planning goal which is consistent with the fish and wildlife habitat values involved. The Resource Categories cover a range of habitat values from those considered to be unique and irreplaceable to those believed to be much more common and of relatively lesser value to fish and wildlife. In applying the Mitigation Policy during an impact assessment, each specific habitat or cover-type that may be impacted by the proposed project is identified. Evaluation species which utilize each habitat or cover-type are then selected for Resource Category determination. Selection of evaluation species can be based on several rationales, including: (1) species known to be sensitive to specific land and water use actions, (2) species that play a key role in nutrient cycling or energy flow, (3) species that utilize a common environmental resource, or (4) species that are associated with important resource problems, such as anadromous fish and migratory birds, as designated by the Director or Regional Directors of the Service. Finally, based on the relative importance of each specific habitat to its selected evaluation species, and the habitat's relative abundance, the appropriate Resource Category and associated mitigation planning goal are determined.

Mitigation goals are: (1) no loss of existing habitat value (Resource Category 1); no net loss of in-kind habitat value (Resource Category 2); no net loss of habitat value while minimizing loss of in-kind habitat value (Resource Category 3); and minimize loss of habitat value (Resource Category 4) as shown in Table 1. As defined in the Service's Mitigation Policy, "in-kind replacement" means providing or managing substitute resources to replace the habitat value of the resources lost, where such substitute resources are physically and biologically the same or closely approximate those lost.

Table 1. Service Mitigation Policy for Resource Categories and mitigation planning goal.

Resource Category	Designation Criteria	Mitigation Planning Goal
1	High value for evaluation species and unique and irreplaceable	No loss of existing habitat value
2	High value for evaluation species and scarce or becoming scarce	No net loss of in-kind habitat value*
3	High to medium value for evaluation species and abundant	No net loss of habitat value while minimizing loss of in-kind habitat value
4	Medium to low value for evaluation species	Minimize loss of habitat value

*Unavoidable losses of habitat value would need to be replaced in-kind. In-kind replacement means providing or managing substitute resources to replace the habitat value of the resources lost, where such substitute resources are physically and biologically the same or closely approximate to those lost.

The Service supports a goal of no net loss of wetland acreage, while seeking a net overall gain in the quality and quantity of wetlands through restoration, development and enhancement. Furthermore, the Service believes that wetlands mitigation, which is the creation of wetlands to

offset losses, should only be deemed acceptable when losses are determined to be unavoidable and mitigation is known or believed to be technically feasible. The Service generally recommends on-site and in-kind compensation, particularly for projects which when completed, would not significantly fragment the habitat and are located in rural areas where compensation acreage is generally available. Restoration of former or degraded wetlands is the preferred form of compensatory mitigation, followed by wetlands creation.

In recommending mitigation for adverse impacts to any of these habitats, the Service uses the same sequential mitigation steps recommended in the Council on Environmental Quality's regulations. These mitigation steps (in order of preference) are: avoidance, minimization, rectification, reduction or elimination of impacts over time, and compensation.

Impacts to eight habitat types were evaluated for the Proposed Project. These habitats, and their corresponding evaluation species, designated resource categories and associated mitigation planning goals are discussed below, and summarized in Table 2.

Based on the relative importance of each specific habitat to its selected evaluation species, and the habitat's relative abundance, uniqueness and replaceability, the appropriate resource category and associated mitigation planning goals are determined.

Recommendations to compensate for adverse effects are based on the Service's designated resource categories, which consider the relative biological importance of each specific habitat to selected evaluation species and the habitat's relative abundance, uniqueness, and replaceability. Resource Category designations for each habitat in the Proposed Project area and associated mitigation planning goals are provided in Table 2. In addition, the Service has a goal of "no net loss of wetland values or acreage," whichever is greater.

Whenever practicable, the Service recommends constructing compensation areas for permanent impacts prior to the start of proposed project construction, minimizing the duration of habitat unavailability to native species.

Effects to federally listed species associated with the proposed project would be addressed pursuant to section 7 of the ESA. Formal consultation has not been initiated as of the issuance of this draft report. However, the Service, NMFS, Reclamation, and NMWC currently are working informally to resolve issues regarding effects to federally listed species through CALFED's ASIP. Initiation of formal section 7 consultation is anticipated in 2008.

Phased Sankey/Elkhorn Diversion—Proposed Action

The Proposed Action would permanently impact 0.53 acre of oak woodland, 0.26 acre SRA cover, 1.29 acres riparian forest, 0.50 acre open water/aquatic, 0.04 acre irrigation canal, and 41.87 acres of agricultural fields. This alternative also would temporarily impact 13.69 acres agricultural fields, 0.92 acre open water/aquatic, 8.64 acres irrigation canal, and 59.27 acres annual grassland. Because the Proposed Action has the least amount of acres impacted a total of

Table 2. Habitat types, evaluation species, resource categories, and mitigation goals for projected impacts due to the proposed American Basin Fish Screen and Habitat Improvement Project, Natomas Mutual Water Company, Sacramento and Sutter Counties, California.

Habitat Type	Evaluation Species	Resource Category	Mitigation Goal
SRA Cover	fall-run Chinook salmon, river otter	1	No loss of existing habitat value
Riparian Forest	neotropical migrant birds	2	No net loss of in-kind habitat value
Riparian Scrub	beaver	2	No net loss of in-kind habitat value
Oak Woodland	Red-tailed hawk, northern flicker, gray squirrel	2	No net loss of in-kind habitat value
Irrigation Canal	Great egret, chorus frog	3	no net loss of habitat value, minimize loss of in-kind habitat value
Open Water/Aquatic	California roach	3	no net loss of habitat value, minimize loss of in-kind habitat value
Agricultural land	common garter snake, great egret, white-faced ibis, snow goose, pintail	3	no net loss of habitat value, minimize loss of in-kind habitat value
Annual Grassland	California ground squirrel	4	Minimize loss of habitat value

47.13 acres of compensation is recommended. Table 3 summarizes the proposed alternatives by habitat impacts.

The Service has designated SRA cover in the Sacramento River as Resource Category 1 due to its high value to a wide array of fish and wildlife species. Under the Service's Mitigation Policy, Resource Category 1 habitats should be avoided and have no net loss of existing habitat value. A variety of aquatic and terrestrial species including river otter could be impacted by the effects to SRA cover. River otter use SRA cover for foraging and rearing of young. It is anticipated that about 0.26 acre of SRA cover would be impacted by the Proposed Action. A Service approved compensation site for the SRA cover has not been identified; however, restoration of the post demolition Riverside and Prichard pumping plant sites, as well as appropriate enhancements of existing SRA cover within the proposed project footprint, could provide full compensation for SRA cover impacts from the Proposed Action.

Oak woodland, riparian forest, freshwater marsh, and riparian scrub have been assigned a Resource Category 2. A Resource Category 2 means no net loss of in-kind habitat value or acreage. Neotropical migrant birds could be impacted by the effects to riparian forest and riparian scrub. Neotropical migrant birds use riparian forest for forage and cover during their migration between wintering and breeding areas. Red tailed hawks could be impacted by the

Table 3. Project Alternatives, Cover-Types, Impact Acres, and Compensation Acres Needed for the American Basin Fish Screen and Habitat Improvement Project.

Alternative and Cover-type	Acres Impacted (Temp / Perm)	Compensation Acres Needed*
Proposed Action		
SRA Cover	0.00 / 0.26	0.78
Riparian Forest	0.00 / 1.29	2.58
Oak Woodland	0.00 / 0.53	1.06
Riparian Scrub	0.03 / 0.15	0.30
Irrigation Canal	8.64 / 0.04	0.04
Open water/Aquatic	0.92 / 0.50	0.50
Agricultural land	13.69 / 41.87	41.87
Annual grassland	59.27 / 0.00	0.00
Total acreage	**82.55 / 44.64**	**47.13**
Alternative 1		
SRA Cover	0.00 / 0.15	0.45
Riparian Forest	0.00 / 0.23	0.46
Oak Woodland	0.00 / 2.11	4.22
Riparian Scrub	0.00 / 0.05	0.10
Irrigation Canal	9.91 / 0.00	0.00
Open water/Aquatic	18.45 / 0.59	0.59
Agricultural land	29.79 / 88.07	88.07
Annual grassland	84.96 / 0.00	0.00
Total acreage	**143.11 / 91.20**	**93.89**
Alternative 2		
SRA Cover	0.00 / 0.16	0.48
Riparian Forest	0.00 / 1.75	3.50
Oak Woodland	0.00 / 2.11	4.22
Riparian Scrub	0.00 / 0.05	0.10
Irrigation Canal	9.84 / 0.05	0.05
Open water/Aquatic	19.42 / 0.47	0.47
Agricultural land	29.09 / 59.99	59.99
Annual grassland	83.79 / 0.00	0.00
Total acreage	**142.14 / 64.58**	**68.81**

*Note-Compensation ratios maybe higher in the biological opinion for affects to federally listed species. Ratios derived from the MSCS developed for the CALFED EIS/EIR.

effects to oak woodland habitat through reducing the area available for nesting. About 0.53 acre of oak woodland is anticipated to be permanently effected. The project proponent proposes to replace the number and size of valley oak trees pursuant to CDFG requirements. This compensation also could provide for the acres of compensation recommended for oak woodland, provided the appropriate mix of tree and shrub species is planted with the valley oak trees and

that the total is at least 1.06 acres. The Project proponents have not proposed any compensation for the planned impacts to riparian forest. Compensation could be obtained at least partially, through restoration of the remaining Riverside and Prichard pumping plants, following demolition and restoration.

Agricultural fields have been assigned a Resource Category 3. A Resource Category 3 means no net loss of habitat value, and a minimization of loss of in-kind habitat value. Snow geese could be impacted by the effects to agricultural fields through reduced foraging and cover habitat available to the species. About 41.87 acres of agricultural fields are anticipated to be permanently impacted and 13.69 acres temporarily impacted with the Proposed Action. It is expected that all habitat value would be restored within 1 year of replanting the agricultural land; therefore, no further compensation is required for temporary impacts. The project proponents do not propose any compensation for the anticipated permanent impacts to agricultural fields.

Irrigation canals have been assigned a Resource Category 3. Chorus frogs could be impacted by the effects to irrigation canals through reducing the breeding and foraging habitat available to the species. Egrets would be impacted through loss of foraging habitat and available food. About 8.64 acres of irrigation canals are anticipated to be temporarily impacted and 0.04 acre permanently impacted with the Proposed Action. No compensation has been proposed by the project proponents for effects to irrigation canals.

Open water/aquatic has been assigned a Resource Category 3. California roach could be impacted by the effects to open water through reducing the breeding, foraging, and cover habitat available to the species. About 0.50 acre of open water is anticipated to be permanently impacted and 0.92 acre temporarily impacted with the Proposed Action. It is expected that all habitat value would be restored within one year of restoring the open water; therefore, no further compensation is recommended for temporary impacts. No compensation has been proposed by the project proponents for permanent effects to open water.

Annual grasslands have been assigned a Resource Category 4. A Resource Category 4 means that loss of habitat value should be minimized. California ground squirrels could be impacted by the effects to annual grasslands through reduced breeding, foraging, and cover habitat available to the species. About 59.27 acres of annual grassland are anticipated to be temporarily impacted with the Proposed Action. Areas with annual grassland temporary impacts would be reseeded with a native grass seed mix. It is expected that all habitat value would be restored within 1 year of seeding the annual grassland habitat; therefore, no further compensation is identified for the temporary impacts.

Alternative 1 and Alternative 2 are intended to work toward the CVPIA goal of doubling anadromous fish populations in the Central Valley of California. To review habitat acres impacted by these alternatives refer to Table 3.

Since this proposed project is tiered off of the CALFED Programmatic EIS/EIR, the compensation acres recommended are according to CALFED's MSCS, with the exception of SRA cover. Most values are the minimum recommended under the MSCS. Due to the high

degree of importance to numerous fish and wildlife species, SRA cover habitat type is recommended for the highest compensation ratio in the MSCS document.

The proposed project contributes to the goals of the CALFED Program. CALFED Bay-Delta Program is a consortium of State and Federal agencies with resource management and regulatory responsibilities in the Delta. The Ecosystem Restoration Program (ERP) is part of the CALFED program. Goal 3 identified in the ERP Strategic Plan for Ecosystem Restoration and the ERP Draft Stage 1 Implementation Plan states that "…the goal is to maintain and/or enhance populations of selected species for sustainable commercial and recreational harvest consistent with the other ERP Strategic Goals" (CALFED 2000). By protecting fish from entrainment, the implementation of this proposed project would work toward this CALFED goal.

The Service supports efforts to minimize fish passage impairment and entrainment, increased fish passage for the Natomas Cross Canal, and full compensation for impacts. All three alternatives provide equivalent benefits for increasing fish passage, decreasing fish entrainment, and increased fish passage for the Natomas Cross Canal.

The Service supports avoiding to the extent practicable, minimizing and compensating unavoidable impacts to SRA cover, riparian habitat, wetlands, natural erodible shoreline, giant garter snake, Swainson's hawk, and other special status species and their corresponding habitat. Alternatives 1 and 2 appear to have fewer impacts to SRA cover than the Proposed Action; however, the maximum amount of SRA cover impacts is 0.26 acre (Proposed Action). Alternatives 1 and 2 could have more impacts to federally protected species and their corresponding habitat than the Proposed Action, due to the greater amount of infrastructure changes that would be required.

The Service's recommendation for SRA cover, as a Resource Category 1 habitat under the Mitigation Policy, would be avoidance of loss of existing habitat value. Strict adherence to the Mitigation Policy would lead the Service to support the No Action Alternative. However, for this proposed project to achieve the expected long-term fishery benefits of substantially improving the long-term ability to reliably pass anadromous fish and other species of concern past NMWC diversion points, losses of SRA cover would be unavoidable. The "acceptance" of these SRA cover losses by the Service is predicated on the lead agencies' environmental commitment to adequately compensate for any unavoidable SRA cover losses. The best biological compensation for lost SRA cover values would be planting woody riparian vegetation along natural erodible shoreline of the Sacramento River. Natural erodible shoreline could result from the select removal of site-specific bank revetment. This compensation should be at least partially achieved by actively revegetating the decommissioned pumping plant sites located at Riverside and Prichard. Any remaining compensation should be achieved by enhancement of existing SRA cover within the NMWC service area.

Swainson's hawks could be impacted by some of the proposed project activities. These impacts should be avoided to the extent practicable by not allowing construction activities within 0.25 mile of active nests during the breeding season (March 1 through August 30) and until the young are fledged and out of the nest. If a nest occurs within 0.25 mile of construction activities,

but outside of the proposed project area, impacts could potentially occur and mitigation measures would apply. Additionally, impacts can be partly avoided if potential nesting trees within the proposed project area are not removed at any time of the year. Any removal of potential nesting trees constitutes a reduction in available nesting habitat. If impacts are found to be unavoidable, minimization measures should be implemented. These would include removing trees that are potential nesting habitat only from November through February, with corresponding replacement of habitat on-site. If an active nest is discovered within 0.25 mile of construction activities, construction should cease and the Habitat Conservation Planning Office of CDFG should be notified immediately. Mitigation and compensation measures for SRA cover and riparian vegetation are anticipated to help minimize impacts to Swainson's hawks. Potential impacts to Swainson's hawks would require consultation with CDFG.

As part of the North American Waterfowl Management Plan (NAWMP), signed in 1986 by the United States and Canada (Mexico signed in 1994), the Central Valley Joint Venture (CVJV) (Service 2005) was established. The NAWMP was written in response to declining waterfowl populations, and was a 15 year plan to achieve population and habitat objectives for North America's waterfowl. Joint ventures were formed in all key waterfowl areas throughout North America to implement the goals of the NAWMP. The CVJV designates the American Basin, including the Lower American Basin, as a vital link to migratory ducks, geese, and shorebirds of the Pacific Flyway.

Impacts potentially could occur to Aleutian Canada goose and other waterfowl from disturbance of emergent marsh and crops such as alfalfa within the proposed project area. Impacts to these areas are proposed under all alternatives. Minimization of unavoidable impacts can be implemented by avoiding disturbance to these habitats during the winter season, when the species are present.

Impacts potentially could occur to fish and wildlife resources from the long-term operations and maintenance practices for the proposed project. Although the long-term operations and maintenance plan was anticipated to be finalized in 2006, as of the preparation of this document, long-term operations and maintenance practices have not been fully negotiated.

Impacts could occur to fish and wildlife resources in the Riverside service area with the proposed project by a decrease in water quality. A shift in pH could have dramatic negative effects on a wide range of fish and wildlife resources that rely on the existing water quality conditions in the Riverside area.

Should any of the alternatives for the proposed project be implemented, the Verona Diversion Dam and pumps would no longer function in the Natomas Cross Canal and all equipment related to the operation of the dam and pumps would be removed. Should another diverter place a dam into the canal, many of the benefits for fish and wildlife resources derived from this project would be negated.

Cylindrical Tee Screens

As part of a Value Engineering (VE) Study for the proposed project, Reclamation determined that the use of cylindrical tee screens could be useful for parts of the Project. A +discussion on their conclusions and recommendations was released with a January 2005, Technical Memorandum (TM) "Suitability for Natomas Mutual Water Company Pumping Plants on the Sacramento River: Pritchard, Elkhorn, and Riverside." This study assumed that the two pumping plants on the Natomas Cross Canal would be replaced by a new, screened facility (flat plate screen) at the Sankey location. The VE Study examined alternatives to those proposed by the project proponent, namely, the use of cylindrical tee screens at the three pumping plants stated above. The VE Study Team examined a variety of issues raised by the project proponents involving the use of cylindrical tee screens including, among others, consolidation of pumping plants, lack of historical application for higher pumping rates, debris issues, and river geomorphology. The review team concluded in their January 2005, TM the concerns raised did not "…present an insurmountable obstacle that can not be accounted for during the final design of a cylindrical tee screen installation. However, specific site characteristics (i.e., – water depth) would need to be looked at and may limit the installation." The Study Team states that retrofitting some of the existing facilities with tee screens and replacing others with new facilities which are then fitted with tee screens would likely prove to be the most beneficial alternative.

The use of cylindrical tee screens at Prichard, Elkhorn, and Riverside has the potential to avoid some of the effects related to the proposed project. For instance, the concerns the Service has regarding potential changes in water quality in the Riverside service area would likely be avoided using cylindrical tee screens. Other effects anticipated with the proposed project that potentially could be avoided with the use of cylindrical tee screens at these locations likely would include some of the terrestrial impacts to canals, grasslands, and agriculture.

In a letter dated June 13, 2005, Reclamation and the Service supported the construction of the proposed consolidation flat plate screens and stated they would not require implementation of cylindrical tee screens for any part of the proposed project. The reasons for this formal decision as stated in the letter are as follows:

- Requiring redesign of the proposed project would be contrary to prior agency direction given to NMWC;
- At the time of the Feasibility Study for the proposed project, cylindrical tee screens were not investigated because these screens on the Sacramento River had been failing and did not have broad support of the fishery regulatory agencies;
- Implementation of cylindrical tee screens would result in significant delays to the proposed project to accommodate redesign and additional environmental compliance work;
- The NMWC has identified several water reliability issues associated with the future use of cylindrical tee screens at NMWC;
- Prichard, Elkhorn, and Riverside Diversion sites do not have the optimal depth for installation of cylindrical tee screens;

- The cost savings that could occur with the use of cylindrical tee screens was unknown at the time; and
- The proposed project applicants previously agreed in writing to abide by the requirements of the AFSP and to meet Federal contracting requirements based on a design that was agreed to by both the AFSP and the proposed project applicant.

Mitigation and Monitoring
Direct effects from construction of the pump station, diversion facilities and canals can be minimized through implementation of appropriate avoidance and mitigation measures as identified in the Proposed Project's description. Incorporating restoration components into the Project design would limit adverse construction effects to both long-term and short-term effects. Restoration of the sites impacted by construction and the replacement of lost habitat functions and values through the purchase of credits at a mitigation bank or though the development of a mitigation site would reduce the impacts associated with the Proposed Project.

Comprehensive mitigation and monitoring plans for terrestrial mitigation sites would need to be developed in concert with the Service, CDFG, and NMFS. Typical monitoring periods recommended by the Service vary depending on site conditions, vegetation types, and methods of planting. The monitoring plan should incorporate measures that trigger actions to remedy the situation or correct deficiencies. The monitoring plan should determine what parameters would be monitored (e.g., percent survival, area/cover, species composition) and how often monitoring would occur (e.g., annually), methodology, and who would receive this information. Plants may need irrigation and weed removal and screening protection from rodents and other herbivores during the establishment period.

RECOMMENDATIONS

The Service recommends that Reclamation:

1. Avoid impacts to fish and wildlife and their habitat by:
   a. Ensuring that existing rock piles and riprap at the Northern and Bennett facilities are left undisturbed as proposed in the project description;
   b. Developing a water quality management plan which includes pH monitoring in the Basin for a period of 3 years post-project implementation and develop an adaptive management plan to address any negative water quality (pH 7.5 or greater) readings that occur within this period. The management plan should include provisions to maintain the existing Riverside facility for a period of 3 years, or until the pH monitoring has concluded;
   c. Conducting pre-construction field surveys during appropriate times of year by qualified biologists to identify and insure implementation of avoidance measures such as fencing and establishment of appropriate buffer areas to protect any sensitive plants, animals, and habitats at or near the project site;
   d. Limiting removal of instream cover and overhanging vegetation to the extent practicable along the Sacramento River;
   e. Protecting existing nests of raptors and other migratory birds until the young are fledged;

2. Minimize impacts to fish and wildlife and their habitat by:
    a. Reducing bank revetment at the proposed Sacramento River pumping plant locations to the minimum length needed for hydraulic performance and structural integrity of the fish screen;
    b. Limiting dredging to the extent possible;
    c. Placing fill material outside of important habitat areas, as identified by a qualified biologist;
    d. Limiting work within wetted channels;
    e. Using the least sensitive areas (such as existing disturbed areas or annual grasslands) for parking, construction activities, stockpiling, and staging areas and limit their sizes. Clearly mark and restore affected areas following construction. Restored areas should be maintained and monitored for a period of 5 years, or until established for a period of 3 years without the need for human intervention;
    f. Reseeding all disturbed areas with regional native plant species (i.e., Sacramento Valley) upon completion of project construction;
    g. Conducting construction activities in emergent marsh and agricultural areas outside of the winter season when waterfowl are not present.

3. Compensate for unavoidable impacts by:
    a. Developing and implementing, in cooperation with the Service, NMFS, CDFG and NMWC, a compensatory mitigation plan for all aquatic and terrestrial habitats adversely affected by the project in accordance with the CALFED MSCS. The mitigation portion of the document should identify compensation areas, designate revegetation areas, list the species to be planted, include a table of existing and expected future habitat acreage, and include a time line for implementation. The monitoring portion of the document should list elements to be monitored that would indicate success or failure, for example, floristic composition and vegetative cover. The mitigation and monitoring plan should include remedial measures should successful revegetation not be achieved;
    b. Implementing compensatory mitigation measures prior to or concurrent with project construction;
    c. Compensating for unavoidable impacts to SRA cover and riparian forest in accordance with the CALFED MSCS. This compensation has not been developed as of the preparation of this document, but is anticipated to be completed in 2008;
    d. Removing riprap associated with the Prichard, Elkhorn, and Riverside facilities. These areas should be actively planted with a mix of native plant species;
    e. Meeting with the Service post-construction and evaluate project-related impacts and mitigation measures. Determine any remaining project mitigation needs, supplementing the mitigation plan, and implementing actions to fully compensate for project-related impacts to fish and wildlife resources.

4. Reclamation should initiate section 7 consultation with the Service and NMFS regarding federally listed species affected by the implementation of this action. In addition, NMWC should apply to the Service for participation in the Natomas Basin Habitat Conservation Plan, pursuant to section 10 of the ESA as described in the EIS/EIR project description.

5. Consult with the CDFG for potential impacts to State listed threatened and endangered species.

6. Develop and implement, in cooperation with the Service, NMFS, CDFG, and NMWC, an evaluation and monitoring plan to assess the adequacy of the fish screen in meeting biological and engineering design criteria and monitor the screen for the period of time necessary to evaluate screen performance at a range of river flows and pumping rates.

REFERENCES

Bureau of Reclamation and California Department of Fish and Game. 2005a. American Basin Fish Screen and Habitat Improvement Project, Administrative Draft Environmental Impact Statement/Environmental Impact Report.

Bureau of Reclamation and Placer County Water Agency. 2005b. Sacramento River Water Reliability Study, Initial Study.

CALFED Bay-Delta Program. 2000. Ecosystem Restoration Program Plan: Strategic Plan for Ecosystem Restoration. Final Programmatic EIS/EIR.

City of Sacramento, Sutter County, and the Natomas Basin Conservancy in Association with Reclamation District No. 1000 and Natomas Central Mutual Water Company. 2003. Final Natomas Basin Habitat Conservation Plan. April 2003. Prepared for U.S. Fish and Wildlife Service and California Department of Fish and Game

Sacramento Area Flood Control Agency. 2007. Draft Environmental Impact Report on the Natomas Levee Improvement Program Landside Improvements Project. Prepared by EDAW/AECOM.

Sills Ag Consulting, Inc. 2004. Personal phone interview.

Sutter County Board of Supervisors. 2001. South Sutter County Specific Plan. Draft Environmental Impact Report.

U.S. Fish and Wildlife Service. 1992. Shaded Riverine Aquatic Cover of the Sacramento River System: Classification as a Resource Category 1 Under the FWS Mitigation Policy.

U.S. Fish and Wildlife Service. 1993. Service response to Public Notice 199200719, Natomas Area Flood Control Improvement Project dated September 19, 1993.

U.S. Fish and Wildlife Service. 1997. Programmatic Formal Consultation Permitting Projects with Relatively Small Effects on the Valley Elderberry Longhorn Beetle Within the Jurisdiction of the Sacramento Field Office, California (Corps File #199600065).

U.S. Fish and Wildlife Service. 1999. Conservation Guidelines for the Valley Elderberry Longhorn Beetle. Sacramento Field Office.

U.S. Fish and Wildlife Service and California Department of Fish and Game. January 2005. Central Valley Joint Venture: Administrative Draft Implementation Plan Update.

APPENDIX A

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 071116112812

Database Last Updated: August 16, 2007

Counties: Sacramento and Sutter

Invertebrates

Branchinecta conservation
Conservancy fairy shrimp (E)

Branchinecta lynchi
Critical habitat, vernal pool fairy shrimp (X)
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
Critical habitat, valley elderberry longhorn beetle (X)
valley elderberry longhorn beetle (T)

Elaphrus viridis
delta green ground beetle (T)

Lepidurus packardi
Critical habitat, vernal pool tadpole shrimp (X)
vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Hypomesus transpacificus
Critical habitat, delta smelt (X)
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run Chinook salmon (T) (NMFS)
Critical Habitat, Central Valley spring-run Chinook (X) (NMFS)
Critical habitat, winter-run Chinook salmon (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)
Critical habitat, CA tiger salamander, central population (X)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Plants

Castilleja campestris ssp. succulenta
Critical habitat, succulent (=fleshy) owl's-clover (X)

Oenothera deltoides ssp. howellii
Antioch Dunes evening-primrose (E)

Orcuttia tenuis
Critical habitat, slender Orcutt grass (X)
slender Orcutt grass (T)

Orcuttia viscida
Critical habitat, Sacramento Orcutt grass (X)
Sacramento Orcutt grass (E)

Candidate Species

Birds

Coccyzus americanus occidentalis
Western yellow-billed cuckoo (C)

Key:
(E) Endangered - Listed as being in danger of extinction.
(T) Threatened - Listed as likely to become endangered within the foreseeable future.
(P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
(C) Candidate - Candidate to become a proposed species.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

- (X) Critical Habitat designated for this species

APPENDIX B

California Department of Fish and Game and National Oceanic and Atmospheric Administration National Marine Fisheries Service Concurrence/Comment letters.
Forthcoming

Appendix F
American Basin Fish Screen and Habitat Improvement Project
Action-Specific Implementation Plan (Included as a Separate File)

Appendix G
Letters Received During the Scoping Process

STATE OF CALIFORNIA -- THE RESOURCES AGENCY GRAY DAVIS, *Governor*

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

September 12, 2003

James Navicky
California Department of Fish and Game
Sacramento Valley – Central Sierra Region 2
1701 Nimbus Road
Sacramento, California 95670

Dear Mr. Navicky:

Staff for The Department of Water Resources has reviewed California Department of Fish and Game Notice of Preparation of a Draft E.I.S. / E.I.R. for the American Basin Fish Screen and Habitat Improvement Project and provides the following comments:

Portions of the proposed project encroach within the Sacramento River Adopted Plan of Flood Control, over which The Reclamation Board has jurisdiction and exercises authority. The California Code of Regulations, Title 23, Waters, Article 3, require that a Board permit be obtained before the start of any work including excavation and construction activities where The Reclamation Board has jurisdiction.

Section 8(b)(2) of the Regulations states that applications for permits submitted to the Board must include a completed environmental questionnaire that accompanies the application and a copy of any environmental documents if they are prepared for the project. For any foreseeable significant environmental impacts, mitigation for such impacts shall be proposed. Applications are reviewed for compliance with the California Environmental Quality Act.

Section 8(b)(4) of the Regulations states that additional information, such as geotechnical exploration, soil testing, hydraulic or sediment transport studies, biological surveys, environmental surveys and other analyses may be required at any time prior to Board action on the application.

If you have any questions, please contact me at (916) 653-0402, or Samuel Brandon at (916) 653-6491.

Sincerely,

Sterling Sorenson
Water Resources Engineering Associate
Floodway Protection Section

cc: Richard Marshall, Chief
Flood Project Inspection Section
3310 El Camino Avenue, Room B-20
Sacramento CA 95821

California Dept. of Fish and Game
1701 Nimbus Rd
Rancho Cordova., Calif.95670

9/15/2003

% James Navicky

Dear Sir;

In regards the moving of Natomas Mutual Water Company Pumps.

You have four plans. Might I suggest a fifth.

The main reason for moving the pumps ouit of the cross canal, I understand , is to get rid of the coffer dam at the mouth of the cross canal, in the summer season.

That can easily be taken care of by dreging the channel to the water district pumps and by adding a few more feet on to the intakes

This dreged dirt could help strengthen trhe levees in both Districts and the cleared channel would increase the flow of drainage water from the the east in the winter time. At any rate the cross canal badly needs cleaning of brush and debrie. As more houses and pavement are put up in Placer County, that water comes off faster in the rainy season, and it has to have some place to go.

This dreging would be easier and would not disturb as much habitant as three of your plans.

Also the Fish and Game is requiring fish screens to save the fish. If they are so adament in saving fish why do they sell fishing licenses? You catch one salmon full of roe going upstream you probably destroy more future fingerling than the pumps pump all year.

In closing I would like to say either clean out and strenghten the cross canal levee or some day the flood waters will be pretty deep right here in District 1000 and District 1001. It has happened before.

Sincerely,

Burton H. Lauppe
11000 Garden Hwy
Sacramento, Ca 95837
916-925-6954

FACSIMILE COVER SHEET

CALTRANS
State of California, Department of Transportation
District 3, Sacramento Office - MS 15
[redacted], P.O. Box 942874
Sacramento, Ca 94274-0001

[redacted]

Date 9/18/03

TO: MR. JAMES NAVICKY

Agency/Division DEPT. OF FISH & GAME, REGION 2

Fax # (916) 358-2912

Telephone # (916) 358-2030

# of pages 2

FROM: MR. KEN CHAMPION, OFFICE OF REGIONAL PLANNING

Telephone # (916) 274-0615

☐ Urgent ☒ For Review ☒ Please Reply

COMMENTS:

CALTRANS DISTRICT 3 COMMENTS IN ADVANCE OF MAILING REGARDING THE NOTICE OF PREPARATION DOCUMENT CONCERNING THE NATOMAS MUTUAL WATER COMPANY'S PROPOSED WATER DIVERSION & DISTRIBUTION SYSTEM MODIFICATIONS.

FACSIMILE COVER SHEET

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 3 – Sacramento Area Office
Venture Oaks - MS 15
P.O. Box 942874
Sacramento, CA 94274-0001
PHONE (916) 274-0638
FAX (916) 274-0648
TTY (530) 741-4509

Flex your power!
Be energy efficient!

September 17, 2003

03SAC0120
03-SAC-Various
American Basin Fish Screen and Habitat Improvement Project
Notice of Preparation
SCH#2003092006

Mr. James Navicky
Department of Fish & Game, Region 2
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670

Dear Mr. Navicky:

Thank you for the opportunity to review and comment on the American Basin Fish Screen and Habitat Improvement project. Our comments are as follows:

- Any water diversion and distribution system modification work to be performed within Caltrans right-of-way will require an encroachment permit. The "County Line Check and Lift Pump" and "re-grading the North Drainage Canal from the V drain to Highway 99" are project actions near the State highway. For permit assistance, please contact Bruce Capaul at (530) 741-4403.

If you have any questions regarding these comments, please contact Ken Champion at (916) 274-0615.

Sincerely,

JEFFREY PULVERMAN, Chief
Office of Regional Planning

c: Scott Morgan, State Clearinghouse

STATE OF CALIFORNIA

GRAY DAVIS, *Governor*

CALIFORNIA STATE LANDS COMMISSION
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

PAUL D. THAYER, *Executive Officer*
(916) 574-1800 FAX (916) 574-1810
California Relay Service From TDD Phone **1-800-735-2922**
from Voice Phone **1-800-735-2929**

Contact Phone: **(916) 574-1814**
Contact FAX: **(916) 574-1885**

September 23, 2003

File Ref: SCH 2003092006

Ms. Nadell Gayou
The Resources Agency
901 P Street
Sacramento, CA 95814

Mr. James Navicky
Department of Fish and Game
Region 2
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670

Dear Ms. Gayou and Mr. Navicky:

Subject: Notice of Preparation for the American Basin Fish Screen and Habitat Improvement Project, Natomas Basin, Sacramento and Sutter Counties

Staff of the California State Lands Commission (Commission or CSLC) has reviewed the subject document. The CSLC is a responsible agency under the California Environmental Quality Act.

The proposed project may involve the Sacramento River, which is State sovereign land under the jurisdiction of the CSLC. Section 6327 of the Public Resources Code provides that if a facility is for the "procurement of fresh-water from and construction of drainage facilities into navigable rivers, streams, lakes and bays," and if the applicant obtains a permit from the local reclamation district, State Reclamation Board, the U.S. Army Corps of Engineers, or the Department of Water Resources, an application shall not be required by the Commission. Since the proposed project appears to fall within this section, you will not need to obtain a lease from the Commission, provided you obtain one of the above-listed permits. Please forward a copy of the permit to Diane Jones, Public Land Manager, State Lands

Commission, 100 Howe Avenue, Suite 100 South, Sacramento, CA 95825, once it has been obtained.

Sincerely,

Stephen L. Jenkins, Asst. Chief
Division of Environmental
Planning and Management

Cc: Diane Jones

CHERYL F. CRESON, Administrator
THOMAS J. ZLOTKOWSKI, Director, Department of Transportation

COUNTY OF SACRAMENTO
PUBLIC WORKS AGENCY

DEPARTMENT OF TRANSPORTATION
906 G Street, Suite 510
Sacramento, California 95814-1812
(916) 874-6291 • Fax No. (916) 874-7831

September 23, 2003

Mr. James Navicky
California Department of Fish and Game
Sacramento Valley – Central Sierra Region 2
1701 Nimbus Road
Rancho Cordova, CA 95670

Subject: **NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT STATEMENT/EVIRONMENTAL IMPACT REPORT (DEIR/EIS) FOR THE AMERICAN BASIN FISH SCREEN AND HABITAT IMPROVEMENT**

Dear Mr. Navicky:

The County of Sacramento Department of Transportation appreciates the opportunity to review the Notice of Preparation of a Draft Environmental Impact Statement/Environmental Impact Report for the above referenced project. We have no comments at this time.

If you have any questions please call me at 874-6291.

Sincerely,

Jeffrey Clark, P.E., T.E.
Senior Civil Engineer

JEC:jec

c. Steve Hong, IFS
Dan Shoeman

P:\Shared Folders\Trans. Planning\Jurisdictional\NOP for American Basin Fish Screen and Habitat Improvement.doc

CSD-1
COUNTY SANITATION DISTRICT 1
Wastewater Conveyance for a Growing Sacramento

10545 Armstrong Avenue
Mather
California
95655
Tele: [916] 876-6000
Fax: [916] 876-6160
Website: www.csd-1.com

October 1, 2003
E225.000

James Navicky
CA State Department of Fish and Game
Sacramento Valley - Central Sierra Region 2
1701 Nimbus Road
Rancho Cordova, CA 95670

Dear Mr. Navicky:

Subject: **Application: Notice of Preparation of a Draft Environmental Impact Statement/Environmental Impact Report for the American Basin Fish Screen and Habitat Improvement Project**

County Sanitation District 1 (CSD-1) and Sacramento Regional County Sanitation District (SRCSD) have reviewed the Notice of Preparation (NOP) of the Draft Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) for the subject project. Parts of the project alternatives lie outside the boundary limits of both districts as well as outside the Urban Services Boundary (USB), while other parts are inside the USB and in and/or outside both districts.

CSD-1 and SRCSD have existing and proposed projects in their Master Plans within the subject area. In particular the path of the Upper Northwest Interceptor lies along the East Drainage Canal. The possibility exists for a less than significant impact to sewage facilities provided mitigation measures are established. The EIS/EIR needs to reflect the need for the applicant to work closely with and coordinate work with CSD-1 and SRCSD during preparation of design and construction documents.

If you have any questions regarding these comments, please call Joyce Ferguson at 876-6098 or myself at 876-6094.

Very truly yours,

Jeff Atteberry, P.E.
Local Sewer Engineering

JA/JF:ds

cc: Christoph Dobson
Steve Hong

navicky093003.ltr

Department of Utilities
Office of the Director

CITY OF SACRAMENTO
CALIFORNIA

1395 35th Avenue
Sacramento, CA 95822-2911
phone (916) 264-1400
fax (916) 264-1497/1498

October 2, 2003
30679

Mr. James Navicky
California Dept. of Fish and Game
Sacramento Valley - Central Sierra Region 2
1701 Nimbus Road
Rancho Cordova, California 95670

SUBJECT: **COMMENTS ON NOTICE OF PREPARATION (NOP) FOR AMERICAN BASIN FISH SCREEN AND HABITAT IMPROVEMENT PROJECT**

Dear Mr. Navicky:

The Department of Utilities for the City of Sacramento has reviewed your agency's NOP for the above project to be constructed and operated by the Natomas Central Mutual Water Company (NMWC), and has the following comments:

- One of the laudable purposes of this project is to screen presently unscreened diversions. The City supports the improvement of fish screens. We assume that the fish screen criteria for this project will be the same as for other diversion facilities being planned in the same vicinity (see next comment).

- **Page 2, Project Alternatives to be Evaluated**: The City also supports the consolidation of diversion facilities. One of the diversion locations included in the NOP's Proposed Project, the Elkhorn Diversion, presently is being evaluated in the Sacramento River Water Reliability Study being conducted by the U.S. Bureau of Reclamation, as the proposed location for construction of a joint diversion serving the Placer County Water Agency, the Sacramento Suburban Water District and the Cities of Sacramento and Roseville. Another diversion location included in the Proposed Project, the Sankey Diversion, also is being evaluated as an alternative in the Sacramento River Water Reliability Study process. The planning and analysis of these two projects should be coordinated to ensure that the project or projects ultimately selected to meet future regional

water supply needs are planned and constructed in a manner that minimizes environmental impacts and results in the most cost-effective and useful facilities. Impacts and benefits of the diversion site(s) identified during the Sacramento River Water Reliability Study process should be taken into account in planning the best site(s) for NMWC's diversions.

Page 3, Proposed Improvements Common to All Action Alternatives, first paragraph: The statement is made that "All action alternatives would maintain the existing NMWC diversion capacity of 630 cfs."

As a result of development, the portion of NMWC's service area that requires agricultural water service has been reduced by over 10,000 acres. Water service to this development is being provided by the City of Sacramento, reducing the demand being met by NMWC. Further reductions are likely to occur as a result of future development. The City of Sacramento is proposing a future Sphere of Influence (SOI) within the Natomas Basin that includes a portion of NMWC's service area, based on the Natomas Joint Vision that was adopted by the Sacramento City Council and the Sacramento County Board of Supervisors in December, 2002.

Under the Natomas Joint Vision, the City is designated as the appropriate agent to plan for new growth in the Natomas Basin (within Sacramento County), and Sacramento County is designated as the appropriate agent for preserving open space, agricultural and rural land uses. Land within the SOI that desires to develop will be required to annex to the City prior to development, and all municipal services to annexed lands will be provided by the City, including municipal and industrial water supply service. This is consistent with Section 11 of the Sacramento City Charter, which requires that the supply of water for the City of Sacramento for municipal and domestic purposes shall always be owned and controlled as a municipal utility and shall be administered by the City government.

The next step in implementing the Natomas Joint Vision consists of amending the City and County General Plans to incorporate the necessary development and land use principles. The current schedule calls for completion of the City's General Plan amendment by December, 2004, followed by County approval of its General Plan amendment shortly thereafter. The City anticipates issuing a Notice of Preparation for an Environmental Impact Report to support this process within the next 1-2 months, and your agency will be sent a copy of the City's NOP.

In order to provide an accurate picture of present and future conditions, as well as potential environmental effects, (i) the EIR's consideration of future conditions should include the future development anticipated within the NMWC service area under the Natomas Joint

Vision, and (ii) the EIR should include an assessment and evaluation of NMWC's present and future demand for surface water diversion capacity, to determine whether the full 630 cfs capacity indicated in the NOP is or will be necessary.

- **Figures 3, 4 and 5**: In order to reduce future conflicts and associated environmental impacts, any improvements or facilities proposed to be located within the City's future SOI should be coordinated, to the greatest extent possible, with the location of utility infrastructure or other improvements planned or anticipated for the SOI, including without limitation facilities that may be constructed by the City to serve future development and any improvements planned under the Sacramento River Water Reliability Study.

Sincerely,

for Gary Reents
Director of Utilities

cc: Mayor Heather Fargo
City Councilmembers
Bob Thomas, City Manager
Joe Robinson, City Attorney
Mike Yee, City of Sacramento
Dave Brent, City of Sacramento
Martha Lennihan, Lennihan Law
Dan Sherry, City of Sacramento

SS

cc: Stephan Sullivan 12/11/03

James P. Pachl
Attorney at Law
817 – 14th Street, Suite 100
Sacramento, California, 95814
Tel: (916)446-3978
Fax: (916)447-8689

October 31, 2003

RECEIVED
DEC 11 2003
MEAD & HUNT

James Navicky
Wildlife Biologist
California Department of Fish & Game
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670

RE: Comments on NOP for Draft EIR/EIS for American Basin Fish Screen (Sacramento River, Natomas area) by Natomas Mutual Water Company

Dear Mr. Navicky,

I recently returned from vacation and found that I had not replied to the above-referenced NOP. As you recall, I attended the September 15 Scoping meeting, which was very informative and helpful. I was favorably impressed by Peter Hughes' detailed description of the project and his willingness to answer questions. The following comments are on behalf of Friends of the Swainson's Hawk.

SAFCA and the Corps of engineers are planning a major project to reinforce the east levee of the Sacramento River alongside Natomas Basin, and the south levee of the Natomas Cross-canal. The levee project includes depositing a "blanket" of earthen material running from the toe of the levee to a point 200 feet inland. This would supposedly prevent "boils" in high-water conditions which might undermine the levee. The Fish Screen project includes new canals running from the new diversion pumps alongside these same levees. How would the SAFCA levee project affect the Fish Screen project, and vice versa?

There are currently Natomas Mutual canals running alongside portions of the levees. How would the SAFCA levee project affect those canals?

The Natomas Mutual water ponds and adjacent groves of trees, located near the Elkhorn pump station, are valuable riparian habitat. Natomas Mutual has been a good steward of that area. It would be highly beneficial if the Fish Screen project could incorporate a mechanism to assure the protection of the water ponds, continued water supply for the ponds, and the groves of trees for perpetuity. Would Natomas Mutual still need use of the ponds after completion of the Fish Screen project? If Natomas Mutual would no longer need the ponds, would Natomas Mutual be willing to donate the lands to the Natomas Basin Conservancy, or CDFG, or some other appropriate conservancy, to be managed as aquatic habitat and riparian forest? If Natomas Mutual needs the ponds, would Natomas Mutual consider donating a conservation easement,

with assurance of water supply, to CDFG or another appropriate conservancy to assure continued protection of the ponds and adjacent groves?

There are Swainson's Hawks nesting in trees alongside the levees. Records of nesting surveys should be consulted, and nesting surveys done at appropriate time prior to commencement of construction. Although some SWH have become accustomed to the presence of scattered houses alongside Garden Highway, construction activities within 1/2 mile of an active SWH nest, during nesting season, could potentially cause parent birds to abandon nests, or frighten the nestlings and thereby cause them to leave (fall out of) the nest before being ready to fly. The levees alongside the Natomas Basin have the densest nesting population of SWH in California. The DEIR should describe in detail the measures that will be implemented to avoid impacts on SWH and SWH nesting.

Removal of trees by the project, whether or not SWH nest trees, should be mitigated by planting and stewarding, for the appropriate time, new groves of suitable native trees alongside or near the Sacramento River levees. More trees in the interior of the Basin, near the levees, would be particularly beneficial as an expansion of the existing riparian ecosystem alongside the Sacramento River. There are plenty of opportunities in the area.

Likewise, the DEIR should prescribe measures that would avoid taking of Giant Garter Snakes, and mitigate for any impacts on Giant Garter Snake (GGS) habitat.

An ongoing issue has been management of vegetation on the banks alongside the canals of Natomas Mutual and RD 1000, which are occupied habitat of the GGS in Natomas Basin. GGS need to come onto the banks to bask to warm their body temperature (necessary for cold-blooded reptiles). Vegetation on the banks provides cover and protection from predators. Lack of bank-side vegetation leaves the GGS vulnerable to predators (such as herons, egrets, raccoons). Natomas Mutual and RD 1000 practice aggressive vegetation removal alongside their canals that leaves GGS exposed to predators. The current Best Management Practice of leaving six inches of vegetation on the banks of canals is very often ineffectual at retaining cover for GGS. Mowing at six inches often causes brush and ruderial vegetation (weeds) to break off at ground level, particularly if the vegetation is dry. Where plants are spaced somewhat apart, mowing at six inches leaves substantial areas exposed at ground level. Use of herbicides completely eliminates vegetation.

Would it be possible for this project to incorporate as a mitigation measure, the agreement of Natomas Mutual to leave considerably more vegetation on the banks of its canals than is the present practice? Continued deterioration of GGS habitat in Natomas Basin could potentially lead to the day on which the wildlife agencies suddenly discover that GGS have almost disappeared from Natomas Basin, followed by a jeopardy determination and substantial restrictions on activities of the water agencies in the Basin and other areas having GGS. Prudence calls for more protective measures at this time to prevent a jeopardy situation.

Thank you very much for considering my comments.

Very Truly Yours,

James P. Pachl

cc: Peter Hughes

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

F

November 21, 2003

American Basin Fish Screen and Habitat Improvement Project
Attention: Stephen Sullivan
Mead & Hunt, Inc.
3327 Longview Drive, Suite 100
North Highlands, CA 95660.

Dear Mr. Sullivan:

The Environmental Protection Agency (EPA) has reviewed the Notice of Intent to prepare an environmental impact statement (EIS) for the **American Basin Fish Screen and Habitat Improvement Project, Sacramento River, California.** Our review is pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and Section 309 of the Clean Air Act.

EPA has no formal comments on the Notice of Intent at this time. Please send two copies of the Draft EIS (DEIS) to this office at the same time it is officially filed with our Washington D.C. Office. If you have any questions, please call me at (415) 972-3847.

Sincerely,

Summer Allen

Summer Allen
Federal Activities Office
Cross Media Division

F

CALIFORNIA DEPARTMENT OF FISH AND GAME –
U.S. BUREAU OF RECLAMATION

PUBLIC COMMENT SHEET

American Basin Fish Screen and Habitat Improvement Project
Scoping Meeting – November 20, 2003

Your comments or suggestions can assist us in the proper development and environmental evaluation of the American Basin Fish Screen and Habitat Improvement Project. Space is provided below to write out any comment you may wish to make. You may hand in your statement at the end of this meeting, or mail it to the address printed below if you prefer.

Please print legibly:

Name - Matthew P. and Kelly E Breese
Address - 6598 Garden Highway, Sac CA 95837
Representing - ourselves

Your Comment or Statement: My husband and I own 2 acres of land on the agriculture side of Garden Highway. We currently have a canal running at the front of our property to accommodate the farmers' water needs for their crops. Not knowing the specifics of how the proposed project will affect the current canals, our only concerns are that the trees fronting the canals are not sacrificed nor compromised in a way that would affect their future growth. There is one walnut tree, one persimmon tree, and one chestnut tree that produce wonderful fruit, and should they be removed or compromised, it would obviously have a negative affect on our property value, not to mention the loss of privacy and shade we would experience.

Mailing Address - Mr. Stephen Sullivan, Mead & Hunt, 3327 Longview Drive, North Highlands, CA 95660

COMMENTS ARE DUE NO LATER THAN DECEMBER 4, 2003

SACRAMENTO
COUNTY AIRPORT SYSTEM
6900 Airport Boulevard • Sacramento, CA 95837

G. Hardy Acree
DIRECTOR OF AIRPORTS

John O'Farrell
ADMINISTRATOR
Community Development &
Neighborhood Assistance Agency

December 1, 2003

RECEIVED
DEC 0 2 2003
MEAD & HUNT

Mr. Stephen Sullivan, P.E.
Senior Project Manager
Mead and Hunt, Inc.
American Basin Fish Screen and
Habitat Improvement Project
3327 Longview Drive, Suite 100
North Highland, CA 95660

RE: Scoping Comments for EIR/EIS Fish Screen and Habitat Improvement Project

Dear Mr. Sullivan:

This letter responds to the public notice recently issued by the Bureau of Reclamation, which solicited scoping comments on the joint Environmental Impact Report/ Environmental Impact Statement (EIR/EIS) for the "American River Basin Fish Screen and Habitat Improvement Project" (Fish Screen project). The Sacramento County Airport System (County Airport System) appreciates the opportunity to provide comments on issues that warrant evaluation in the joint (EIR/EIS). As you know, several Fish Screen project meetings convened by the Natomas Mutual Water Company (NMWC) have been attended by Deputy Director Fred J. Coxe and Senior Environmental Analyst Greg Rowe of the County Airport System's Planning and Development. We are therefore familiar with the goals of the Fish Screen project.

Our purpose in commenting is to suggest several potential impacts that should be addressed in the EIR/EIS. Those items are described below.

1. Sacramento International Airport (Airport) Master Plan: The County Airport System is nearing completion of a comprehensive Master Plan Update that will identify development projects through the year 2020. As part of this effort, on October 22, 2003 the County Board of Supervisors approved a preferred runway layout that includes a 2,400-foot extension of the east runway (16L/34R) and construction of a new 8,600 parallel runway located 1,200 feet west of the existing

west runway (16R.34L). It is anticipated that in February 2004 the Board will approve a "Preferred Alternative" for the entire Master Plan Update, including the location and general configuration of new terminals, parking garages, commercial development, and ancillary facilities. The EIR/SIS for the Fish Screen project should therefore take into consideration the potential impacts of improvements to NMWC distribution facilities on the Airport Master Plan Update.

2. Waterfowl Habitat Creation and Enhancement: An April 2, 2002 press release that announced federal funding for the Fish Screen project noted that the project will also create and enhance habitat for waterfowl. As noted in attached Federal Aviation Administration Advisory Circular AC 150/5200-33, creating waterfowl near airports is discouraged because of the particular hazard to aircraft operations that such birds can cause. The EIR/EIS should therefore evaluate the potential negative impacts of the Fish Screen project in this regard.

3. Natomas Basin Habitat Conservation Plan (HCP): The EIR/EIS should take into consideration that a portion of the territory that will be potentially affected by this project is located within the HCP Permit Area. As you know, NWMC and Reclamation District 1000 (RD 1000) are represented as HCP Permitees, and each has a defined "Permit Area" in the HCP. Although both water agencies elected to cease active participation in the HCP because the United States Fish and Wildlife Service (USFWS) would not issue incidental take coverage for herbicide use by the two water agencies, the project's potential impacts in the NMWC designated Permit Area within the HCP should be evaluated.

4. Endangered Species: The EIR/EIS should evaluate potential impacts on the Giant Garter Snake (GGS), a species listed as "threatened" under the federal Endangered Species Act (FESA) and the Swainson's hawk, listed as threatened under both FESA and the California Endangered Species Act (CESA). The evaluation should include both permanent impacts and temporary impacts resulting from construction activities.

5. Wetlands: The service area of NWMC includes a number of wetlands recognized by the United States Army Corps of Engineers (USACE) and the USFWS. Several of these wetlands are identified in the National Wetlands Inventory maintained by USFWS. In particular, the Prichard Lake and Jacobs Slough wetlands are located on parcels owned by the County of Sacramento as operational buffer for Sacramento International Airport (International), and could be potentially impacted by the Fish Screen project. We therefore recommend that the following agencies be consulted for purposes of the EIR/EIS analysis: California Department of Fish and Game, USACE, USFWS, and the California Regional Water Quality Control Board – Central Valley Region.

Moreover, the County Airport System is concerned that the distribution facilities operated by NMWC in conjunction with the Fish Screen project will be designed

and maintained in a manner that will not induce the creation of wetlands. Water conveyance facilities that traverse the property of Natomas Basin landowners such as the Airport can create additional maintenance burdens for those property owners if the facilities are not properly designed and operated. In particular, the unintentional creation of wetlands can trigger complex measures for avoiding and minimizing impacts on the aquatic and upland habitat of the Giant Garter Snake (GGS), a species protected under both the California and federal Endangered Species Acts. The EIR/EIS should therefore consider such potential impacts.

Again, thank you for considering the County Airport System's comments. Questions may be directed to SCAS Senior Environmental Analyst Greg Rowe at 874-0698 or roweg@saccounty.net.

Sincerely,

Robert B. Leonard, Assistant Director
Administration and Planning

RBL:GR:kls

Attachment (FAA AC No. 150-5200-33)

Cc:

Leonard H. Takayama, Deputy Director – Planning and Development
Charles H. Myers, Manager – Planning and Development
Fred Greco, Deputy Director – Operations and Maintenance
Chris Martin, Wildlife Coordinator – Operations and Maintenance
Greg Rowe, Senior Environmental Analyst – Planning and Development
Joyce Horizumi, Environmental Coordinator – County of Sacramento Department of Environmental Review and Assessment

Appendix H
Mitigation Monitoring and Reporting Plan

Mitigation Monitoring and Reporting Plan for the ABFS Proposed Action

Mitigation Measure	Implementing Party / Monitoring Party	Implementation Period / Monitoring Frequency	Outside Agency Coordination
Mitigation Measure TB-2: Reduce impacts to giant garter snakes In addition to all of the standard construction measures included in Chapter 2, Natomas Mutual has agreed to join the Natomas Basin Habitat Conservation Plan (NBHCP) as a signatory and has developed its own set of best management practices (BMPs) to reduce take on Covered Species, including the giant garter snakes (see **Appendix F, Attachment 5**). As part of its BMPs, Natomas Mutual will incorporate the following minimization and avoidance measures that are specific to construction of the ABFS Proposed Action: • Construction phasing shall be scheduled to provide for dewatering, clearing, grading, and any earthmoving activities to coincide with the warm conditions associated with active giant garter snake behavior. While standard guidelines recommend scheduling construction activities between May 1 and October 1, cool seasonal conditions during this time may cause giant garter snake activity to decline to the extent that snakes cannot avoid death or injury due to construction activities. Work in the canals shall be completed in sections. Dewatering shall be associated with agricultural activities and shall begin prior to the end of the active season (likely in August or early September). For example, work on the Riverside and Elkhorn main canals shall be completed within one year. • USFWS guidelines prohibit construction in giant garter snake habitat, including a 200-foot corridor of upland habitat adjacent to suitable aquatic habitat, after October 1st unless it is specifically authorized in a Biological Opinion. Compensation for the temporal loss of aquatic habitat may also be required by	Natomas Mutual in conjunction with its biologist	During construction (Phases I, II, and III); pre-construction surveys to be completed prior to onset of construction	Coordinate with USFWS and TNBC

USFWS. • Construction sequencing I, II, and V include activities that could disturb potential giant garter snake habitat during the spring and fall, at the extremes of the active season (see Section 2.3.3: *ABFS Proposed Action – Sankey/Elkhorn Diversions* for a discussion of construction sequencing); however, once specific areas have been surveyed, cleared, and then resurveyed to ensure that no snakes or suitable habitat are present, some work may continue outside of these limits until the onset of the rainy season. Construction sequencing schedules shall be designed with flexibility so that disruptive activities in active giant garter snake habitat occur only when individuals are fully active (to be determined by the monitoring biologist). Work at the new diversion sites outside of giant garter snake habitat can continue on a year round basis, weather permitting.			
Mitigation Measure TB-5: Reduce potential take of VELB and its habitat Under Phase II of the ABFS Proposed Action, Natomas Mutual will implement the following mitigation measures to compensate for the loss of VELB habitat that cannot be avoided: • Purchase VELB credits in an USFWS-approved mitigation bank to mitigate for 27 elderberry stems in riparian habitat. According to the USFWS (1999) guidelines this would involve planting of 62 elderberry seedlings and associated natives based on the stem measurements identified earlier. Since each elderberry credit includes five elderberry stems, the purchase of 13 credits would be required. • Transplant the five elderberry shrubs to an approved mitigation bank, if transplanting is possible (i.e., where the credits were purchased). Transplanting will be undertaken during the dormant season (November 1 to February 15) to reduce stress on the plants. An 1,800-square-foot area will be provided for each	Natomas Mutual, in consultation with its biologist.	Prior to onset of construction for Phase II / Monitoring would be completed by mitigation bank. Prior to onset of construction for Phase II / monitoring to be completed by mitigation bank	Provide evidence of credit purchase to USFWS prior to onset of construction. Annual reports to USFWS to be completed by mitigation bank.

transplanted elderberry shrub. Within this area five additional elderberry seedlings and five associated native seedlings also can be transplanted.			
Mitigation Measure TB-6: Minimize the loss of riparian and shaded riverine aquatic habitats The USFWS, NMFS, and CDFG require compensation for the loss or disturbance of riparian SRA habitats. Typically, these agencies require mitigation at a 3:1 ratio (i.e., three trees must be planted for each tree lost). Due to the lack of availability of mitigation sites in the ABFS Action Area, Natomas Mutual will purchase credits at a federally-approved mitigation bank that has SRA credits available. The final number of credits to be purchased shall be determined by agency staff.	Natomas Mutual / No monitoring required.	Before construction begins on Phases I and II; monitoring to be completed by agency-approved mitigation bank.	Provide evidence of credit purchase to USFWS prior to onset of construction.
Mitigation Measure TB-8: Resident and migratory wildlife species Natomas Mutual will remove swallow nests during the non-nesting season either by scraping them off artificial structures or by washing them down. The nests must be removed before egg-laying occurs to avoid damaging active nests. Nest removal shall continue from March 1 until September 1, or until construction activity within 100 feet of affected structures is completed, whichever comes first. The Bennett Pumping Plant shall not be dismantled during the nesting season unless all nests have been removed. Deterrent measures (e.g., netting and on-going removal) to prevent the reestablishment of nests on this structure shall be taken if the facility is not dismantled prior to the swallows' return.	Natomas Mutual in conjunction with its biologist.	Before construction begins on Phases I, II, and III / Internal report on results of swallow nest removal activities prior to demolition of each structure.	Information to be included in Natomas Mutual's annual reports, consistent with requirements of the NBHCP.
Mitigation Measure TB-9: Loss of wetlands Natomas Mutual will purchase credits at an approved mitigation bank to offset the loss of seasonal wetlands that may occur during Phases II and III of the ABFS Proposed Action. However, prior to purchasing credits, Natomas Mutual proposes to use the excess acreage of newly-created canal (aquatic) habitat as mitigation for the degraded seasonal wetlands and only purchase credits if there is not sufficient created canal habitat to assure no net loss. Given the nature of the degraded seasonal wetlands and the enhanced function of the created canals this would be adequate for mitigation	Natomas Mutual	Agency approval (Corps of Engineers) prior to the onset of Phases II and III.	Corps of Engineers, through Clean Water Act Section 404 individual permit process.

purposes.			
Mitigation Measure TB-10: Loss of mature trees Before construction, Natomas Mutual will hire a qualified biologist, who in conjunction with the project engineer shall determine the number and size of protected oak trees in Sacramento County that would be impacted by the ABFS Proposed Action. The biologist shall determine the required mitigation, based on the Sacramento County Oak Tree Preservation Ordinance, in concert with CDFG requirements. The replacement oaks shall be planted within the Natomas Mutual service area, within a similar habitat, if possible.	Natomas Mutual in conjunction with its biologist and/or arborist.	Before construction begins on Phases I and II.	CDFG and Sacramento County
Mitigation Measure AE-1: Changes in the viewshed Natomas Mutual shall implement the following measures during construction of the facilities along the Sacramento River: • Install landscape screening, such as grouped plantings of trees and tall shrubs, to screen proposed facilities from nearby viewers such as boaters, recreationists, motorists, and residents. • Construct facilities with earth-tone building materials.	Natomas Mutual and its contractor.	Following construction on Phases I and II. Following construction on Phases I and II.	Sacramento and Sutter counties through plan approval. Sacramento and Sutter counties through plan approval.
Mitigation Measure AE-2: Degredation of existing visual character Natomas Mutual shall implement the following measures during construction of the facilities along the Sacramento River: • Areas where dust is generated shall be watered, where feasible, particularly along unpaved haul routes and during earth-moving activities, to reduce visual impacts caused by dust. • Disturbed areas shall be revegetated as soon as possible after construction. • Vegetation type, placement, and density shall be selected	Natomas Mutual and its contractor	During construction of Phases I and II. Following construction of Phases I and II. Following construction of	Sacramento and Sutter counties. Corps of Engineers, USFWS, and CDFG. Corps of Engineers,

to be compatible with patterns of existing vegetation where revegetation occurs in natural areas. Implement Mitigation Measure TB-6: Minimize the loss of riparian and shaded riverine aquatic habitats.		Phases I and II.	USFWS, and CDFG.
Mitigation Measure AES-3: New source of substantial light due to construction that would adversely affect day or nighttime views in the area. Natomas Mutual will ensure that any lighting used during construction activities shall be located and directed so that it is concealed to the extent practicable when viewed from local roads, nearby communities, and any recreation areas.	Natomas Mutual and its contractor.	During construction of all three phases.	Sacramento and Sutter counties through plan approval.
Mitigation Measure AES-4: New source of substantial light or glare from security lighting that would adversely affect day or nighttime views in the area Natomas Mutual will ensure that all lighting constructed and used for the ABFS Proposed Action shall meet the following standards: • Any exterior lighting at facilities shall be located and directed so that it is concealed to the extent practicable when viewed from local roads, nearby communities, and any recreation areas. • Any security lighting provided shall include a wrap-around shroud to prevent fugitive light and glare. • In order to minimize light trespass on abutting properties and to reduce potential effects to night-active wildlife in areas retained in open space, illumination measured at the nearest property line of the subject parcels shall not exceed the moon's potential ambient illumination of one-tenth (0.1) of a foot-candle, measured on a vertical plane along the property line.	Natomas Mutual and its contractor.	During construction of Phases I and II. During all three phases of construction. During all three phases of construction.	Sacramento and Sutter counties through plan approval. Sacramento and Sutter counties through plan approval. Sacramento and Sutter counties through plan approval.